

RESOLUTION OF THE INDIANA MOTORSPORTS COMMISSION

DECLARING AN AREA IN MARION COUNTY, INDIANA AS A MOTORSPORTS INVESTMENT DISTRICT AND APPROVING A RELATED QUALIFIED MOTORSPORTS FACILITY IMPROVEMENT PLAN

RESOLUTION NO. G4-2013

WHEREAS, pursuant to I.C. 5-1-17.5 (as amended from time to time, the "Act"), the General Assembly of the State of Indiana (the "State") found that (a) Marion County and certain surrounding counties and municipalities located in those counties face unique and distinct challenges and opportunities related to the economic development issues associated with the maintenance of a world-class motorsports facility in the town of Speedway; (b) a unique approach was required to ensure that such a motorsports facility can be maintained to allow these counties and municipalities to meet these challenges and opportunities; and (c) the powers and responsibilities provided to the Indiana Motorsports Commission (the "Commission") created by the Act and were appropriate and necessary to carry out the public purposes of encouraging and fostering economic development in central Indiana and maintaining a world-class motorsports facility in the town of Speedway; and

WHEREAS, such findings by the General Assembly concerning a world-class motorsports facility located in the town of Speedway relate to the Indianapolis Motor Speedway and its ancillary facilities and improvements as described in the attached Exhibit A (the "Motor Speedway") which is presently owned and operated by the Indianapolis Motor Speedway, LLC ("IMS"); and

WHEREAS, IMS has represented to the Commission that the Motor Speedway is a facility that: (a) is located in Indiana; (b) is used for professional motorsports racing events; (c) has a motorsports racetrack that is greater than two (2) miles in length; and (d) holds at least two (2) professional motorsports racing events (inclusive of professional motorsports racing practice sessions that are open to the general public) annually at which the combined admissions total at least two hundred thousand (200,000); and, as such, the Motor Speedway is a "qualified motorsports facility" within the meaning of the Act; and

WHEREAS, IMS has requested that the Commission establish the geographic area related to the Motor Speedway as a "motorsports investment district" under the Act, which geographic area is further and more particularly described in the attached Exhibit B (the "District"); and

WHEREAS, IMS has represented to the Commission that such geographic area which it proposes to constitute the District only includes: (a) the geographic area that is included within the Motor Speedway (which is a qualified motorsports facility); (b) adjacent property that is related to the operation of the Motor Speedway (which is a qualified motorsports facility) and is owned by IMS, as the owner of the Motor Speedway (which is a qualified motorsports facility),

or a subsidiary or affiliate of IMS; (c) property on which activities related to the Motor Speedway (which is a qualified motorsports facility) occur; or (d) other public property specified by the Commission in this Resolution; and

WHEREAS, IMS has proposed its plans to the Commission as described and detailed in the attached Exhibit A ("Improvement Plan") which provides that if such District is so established by the Commission and the Commission causes the improvements at the Motor Speedway as described and detailed in the attached Exhibit A ("Improvements") to be constructed, acquired, leased and financed pursuant to the Act, such Improvements: (a) will have a positive effect on the activities of the Motor Speedway; (b) will benefit the public health and welfare; (c) will be of public utility and benefit; and (d) will protect or increase state and local tax bases and tax revenues; and

WHEREAS, IMS has recited as support for such findings the study titled "*Estimating the Annual Economic Contributions of the Indianapolis Motor Speedway*," together with certain supplemental information provided by IMS related thereto (each as attached as part of Annex II to the Improvement Plan), and the Commission has noted the same in connection with its findings; and

WHEREAS, the Improvement Plan has been presented to the Commission at this meeting for consideration of the Commission; and

WHEREAS, the Commission has caused the Improvement Plan (including supporting data) and the findings set forth in this Resolution (including the establishment of a motorsports investment district pursuant hereto and to the Act), to be duly reviewed and considered (including with an opportunity for public comment at a public hearing undertaken as provided in I.C. 5-3-1); and

WHEREAS, by this Resolution, the Commission desires to establish the District as a "motorsports investment district" under the Act and take all further supporting actions required by the Act; and

NOW, THEREFORE, BE IT RESOLVED, by the Commission, as follows:

1. The foregoing recitals are hereby adopted.
2. The Commission hereby determines and finds that the geographic area as further and more particularly described in the attached Exhibit B shall be and constitute a "motorsports investment district" under the Act.
3. In connection with such establishment of the District (and by reference to the Improvement Plan), the Commission hereby makes the following findings:

- (a) There are improvements that will be undertaken in the District (as a motorsports investment district) that will have a positive effect on the activities of the Motor Speedway (as a qualified motorsports facility);
- (b) The improvements that will be undertaken in the District (as a motorsports investment district) will benefit the public health and welfare and will be of public utility and benefit;
- (c) The improvements that will be undertaken in the District (as a motorsports investment district) will protect or increase state and local tax bases and tax revenues;
- (d) As determined in this Resolution, the District (as a motorsports investment district) consists of the following properties:
 - (1) The geographic area that is included within the boundaries of the Motor Speedway (in its character as a qualified motorsports facility);
 - (2) The geographic area that is part of any adjacent property that is: (A) related to the operation of the Motor Speedway (as a qualified motorsports facility); and (B) owned by the owner of the Motor Speedway (as a qualified motorsports facility) or a subsidiary or affiliate thereof;
 - (3) The geographic area that is part of a property on which activities related to the Motor Speedway (as a qualified motorsports facility) occurs; and
 - (4) The geographic area that is part of other public property that has been specified by the Commission;

With each of the foregoing determined by reference to the maps and relationships delineating in the Improvement Plan (as described in the attached Exhibit A) and contained within the District (as described in the attached Exhibit B).

4. In support of the findings and determinations set forth in Sections 1 through 3 above, the Commission hereby adopts the specific findings set forth in the Improvement Plan, including any reports and studies incorporated therein by reference.

5. The Improvement Plan is hereby in all respects approved as necessary to establish the District, and the public finance director of the State (the "Public Finance Director") is hereby directed to file a certified copy of the Improvement Plan with the minutes of this meeting.

6. The Public Finance Director is authorized and directed to cause a motorsports investment district fund for the District (the "District Fund") to be established, maintained and applied, and is authorized and directed to request any necessary appropriations, as provided by the Act, as, when and to the extent that such is needed for the purposes of the District.

7. This Resolution, together with any supporting data including the Improvement Plan, shall be submitted to the State Budget Agency, for its review, consideration and approval, as and in the manner that is provided in the Act.

8. The Public Finance Director shall notify the Indiana Department of Revenue of the adoption of this Resolution, together with any supporting data including the Improvement Plan, as and in the manner that is provided in the Act.

9. This Resolution and the District shall expire as provided by the Act on the date that is the later of (a) the date that is thirty (30) years after the date of the adoption of this Resolution; or (b) the date on which the owner of the Motor Speedway (as a qualified motorsports facility), and any subsidiary or affiliate thereof, no longer have any financial liability to the Commission or the Indiana Finance Authority, whether pursuant to the Act, any agreement or otherwise.

10. This Resolution (including the Improvement Plan and the geographic area related to the Motor Speedway established as a "motorsports investment district" under the Act) may be amended and supplemented from time to time by the Commission as and to the extent permitted by the Act.

11. The provisions of this Resolution shall be subject in all respects to the Act and any amendments thereto.

12. This Resolution shall be in full force and effect immediately upon its passage.

Duly adopted by a vote of the Commission on this 10th day of December 2013.

INDIANA MOTORSPORTS COMMISSION

Christopher D. Atkins, Chairman

Attest:

Ryan C. Kitchell, Secretary-Treasurer

EXHIBIT A TO
COMMISSION RESOLUTION
INDIANAPOLIS MOTOR SPEEDWAY
QUALIFIED MOTORSPORTS FACILITY
IMPROVEMENT PLAN

The General Assembly of the State of Indiana ("State") has enacted I.C. 5-1-17.5, as amended from time to time (the "Act") which creates the Indiana Motorsports Commission (the "Commission"). The Act provides that the Commission, upon request of the owner or operator of a qualified motorsports facility (as defined in the Act, a "Qualified Motorsports Facility"), may establish a geographic area related to such Qualified Motorsports Facility as a motorsports investment district (as defined in the Act, a "Motorsports Investment District").

The Indianapolis Motor Speedway, LLC ("IMS") presently owns and operates a world class motorsports facility located in the town of Speedway, Indiana (the "Motor Speedway"). By its submission of this Indianapolis Motor Speedway Qualified Motorsports Facility Improvement Plan (the "Improvement Plan") to the Commission, IMS has requested that the Commission establish a Motorsports Investment District with respect to the Motor Speedway under the Act. To support the Commission's findings to establish the Motorsports Investment District, the Improvement Plan provides information that IMS has represented to the Commission to be accurate and demonstrable for purposes of establishing a Motorsports Investment District under the Act.

QUALIFIED MOTORSPORTS FACILITY

The Motor Speedway includes a motorsports racetrack greater than two miles in length located in Speedway, Indiana which is used for professional motorsports racing events. In 2013, three primary professional motorsports racing events were held at the Motor Speedway, the Indianapolis 500 Mile Race on May 26, the Crown Royal Presents the Samuel Deeds 400 at the Brickyard Powered By BigMachineRecords.com ("Brickyard 400") on July 28, and the Red Bull Indianapolis GP ("Moto GP") on August 18, as well as several other professional motorsports racing events, including the Firestone Freedom 100 Mile Race, Indiana 250 Mile Race, Brickyard Grand Prix, Brickyard Sports Car Challenge, the Moto2, Moto3, AMA Pro Vance & Hines Harley-Davidson Series race and FIM eRoadRacing World Cup race. In connection with the foregoing events, additional professional motorsports practice or qualifying sessions open to the public were also held in 2013. The combined admissions for the foregoing events in 2013 were more than 200,000 attendees. In 2014, the foregoing events are scheduled to be held at the Motor Speedway. In addition, a new event, the Grand Prix of Indianapolis, is scheduled to be held at the Motor Speedway in 2014. Based on the foregoing and by its submission of the Improvement Plan, IMS has represented to the Commission that the Motor Speedway constitutes a Qualified Motorsports Facility within the meaning of the Act.

MOTORSPORTS INVESTMENT DISTRICT

By its submission of the Improvement Plan, IMS has requested that the Commission establish a geographic area related to the Motor Speedway as a Motorsports Investment District under the Act. This geographic area will be referred to herein as the Motorsports Investment District.

Attached as Annex I to this Improvement Plan are maps and a directory which we represent may serve as the basis for the Commission to define the boundary of the Motorsports Investment District in conformance with the Act. The directory sets forth a description for each parcel of property IMS has requested to be included in the Motorsports Investment District. The ownership of such parcels that IMS has requested be included within the Motorsports Investment District falls into the following categories:

- 1) Parcels that are owned by IMS which are used as part of the racing or event operations or administration held at the Motor Speedway, as a Qualified Motorsports Facility. These parcels are listed on the Marion County property tax records as owned by IMS (or slight variations of that label). This is "Group 1" on the directory. Accordingly these parcels should be considered by the Commission to satisfy the requirement of Section 24(c)(1) of the Act.
- 2) Parcels that are owned by IMS or Georgetown Realty Company, Inc., an affiliated entity with common ownership to IMS ("Georgetown Realty"). IMS and Georgetown Realty are both wholly owned subsidiaries of a related parent company. These parcels are located outside the area considered by IMS to be part of the Motor Speedway, as a Qualified Motorsports Facility, but that are used for activities that relate to the Motor Speedway and its operation, as a Qualified Motorsports Facility. These activities relate to the Motor Speedway (as a Qualified Motorsports Facility) because they: involve provision of hospitality, entertainment and retail goods and services for patrons attending Motor Speedway events as well as for collateral attendance by persons attracted to but not attending Motor Speedway events; and are in close proximity of time to (or during and for) the events taking place at the Motor Speedway. Accordingly these parcels should be considered by the Commission to satisfy the requirement of Section 24(c)(2) of the Act.
- 3) Parcels that are owned by landholders with no common ownership relationship to IMS, but on whose property activities related to the Motor Speedway (as a Qualified Motorsports Facility) occur. These parcels further divide into 2 subcategories.
 - (a) Property on which event parking, patron camping, or vendor sales take place. These activities relate to the Motor Speedway (as a Qualified Motorsports Facility) because they: involve provision of hospitality, entertainment and retail goods and services for patrons attending Motor Speedway events as well as for collateral attendance by persons attracted to but not attending Motor Speedway events; and are in close proximity of

time to (or during and for) the events taking place at the Motor Speedway. Accordingly these parcels should be considered by the Commission to satisfy the requirement of Section 24(c)(3) of the Act.

- (b) Property on which activities are conducted by the Sarah Hartman Racing, LLC and the Dallara USA Holding, Inc. (as identified on the directory) relate to the Motor Speedway (as a Qualified Motorsports Facility) occur, which activities are outside the Motor Speedway (as a Qualified Motorsports Facility). These activities support the racing industry in general and the Motor Speedway racing in particular including direct racing support activities. Accordingly these parcels should be considered by the Commission to satisfy the requirement of Section 24(c)(3) of the Act.

The attached Annex I includes (i) a satellite map with the entire Motorsports Investment District boundary shown, and the individual parcels outlined, (ii) a set of parcel boundary maps with index numbers that tie to the parcel directory described above and (iii) a directory listing of parcels listed, indexed, with owners identified (which identification is as shown in Marion County property tax records; actual legal names of such property owners may, and often do, vary from the names recited on such tax records) and with a description of the motorsports related use. The directory includes parcel number by which it can be identified within the Marion County property tax database. Also included in the directory is the property class, area in acres and legal description (which identifying data have been obtained from that shown in Marion County property tax records; actual data points may vary from such information shown in the tax records).

IMPROVEMENTS

The economic impact and related information contained herein has been made available to the Commission by IMS to support its request that the Commission establish the Motorsports Investment District under the Act as described in this Improvement Plan. The Motor Speedway has an economic impact on the Indiana economy exceeding \$500 million annually¹. IMS and its affiliates directly do business with vendors in at least 88 of Indiana's counties. The activities at the Motor Speedway have spawned and support a large and growing Indiana motorsports industry responsible for over 6,200 Indiana jobs, paying an annual average wage of \$63,000¹.

The motorsports industry, because of its value and desirability in attracting high wage jobs (drivers, crew chiefs, engineers, research and development personnel, sales and marketing professionals, etc.), its value to tourism (in the case of the Indianapolis 500, the largest attended single day sporting event in the world), ties to the automotive industry and other high technology industries, and, as noted its intrinsic value with the notoriety attached to it, has become extremely competitive. Governmental units around the world pay annual eight figure sanction fees for the

¹ *Estimating the Annual Economic Contributions of the Indianapolis Motor Speedway*, Indiana University Public Policy Institute, February 2013, together with certain supplemental information provided by IMS related thereto, which are attached as part of Annex II to this Exhibit.

opportunity to host motorsports events,² events that do not garner the economic benefit that is provided to Indiana by the Indianapolis 500. States within the United States have enacted economic development programs with incentives designed to encourage the development of motorsports programs in their states. North Carolina claims that motorsports has a six billion dollar impact to its state.³

Finally, competitive racing leagues and owners of race tracks invest in their sport and their facilities to attract competitors, sponsors, and race fans. A recent example is the International Speedway Corporation, a public company which owns the Daytona International Speedway, home of the Daytona 500, which announced in June, 2013 that it would be spending 370 to 400 million dollars on track improvements to that race venue from 2013 through 2017.⁴ That race track facility is not as old, nor nearly as large, as the Motor Speedway.

IMS has determined that for the Motor Speedway to remain the "*The Greatest Race Track in the World*," and for the Indianapolis 500 to remain "*The Greatest Spectacle in Racing*," it is critically important to look for innovative ways to maximize each investment dollar in order to modernize the facilities and improve the experience fans have when visiting the Motor Speedway. IMS has determined that a significant increase in new publicly financed U.S. racing facilities, combined with publicly financed upgrades at existing tracks, require the Motor Speedway to pursue additional investments to make its 100+ year old facilities more flexible and attractive for events and to enhance fan experience.

Immediately upon passage of the Act, IMS assembled a project team and commenced a comprehensive, in depth master planning process in order to identify the improvements to the Motor Speedway which would be most impactful on the future success of existing and future professional motorsports racing events at the Motor Speedway and the impact on the Indiana economy. IMS has determined that the following criteria and factors have been considered (and IMS has requested that the Commission consider the following criteria and factors) in identifying the capital improvements at the Motor Speedway proposed to be funded from proceeds raised by a borrowing ("IFA Bonds") undertaken by the Indiana Finance Authority ("IFA") under the Act ("Improvements"):

- 1) Focus on the Fan Experience: Many improvements within the Motor Speedway are more than 100 years old. While this enhances the sense of nostalgia that "traditionalist" fans so appreciate, it is not as meaningful in attracting, satisfying and retaining new and younger fans, the lifeblood of any enduring sports enterprise. "Fan Experience" Improvements will be proposed for the Motor Speedway that are designed to maximize: a) ease of fan ingress and egress to its events; b) fan access to abundant, clean, modern restrooms; c) availability of broad food and beverage choices at efficient and inviting concession venues; and

² The sanction fee for the Formula One race in Australia is reportedly subsidized by the government in the amount of \$30 million per year. *Herald Sun*, Melbourne, Australia, January 23, 2013.

³ North Carolina Motorsports Association website. *See also*, The Economic Impacts and Occupational Analysis of the North Carolina Motorsports Industry for 2005, by John E. Connaughton and Ronald A. Madsen, The Belk College of Business, UNCC., January 2006.

⁴ International Speedway Corporation announcement on June 18, 2013.

- d) inviting and exciting gathering spots for fans to enjoy an enhanced "festival" atmosphere surrounding the events.
- 2) Focus on Technology. Expectations of the fans for access to robust, state-of-the-art, real time scoring data, video and audio have grown dramatically. For example, the modern racing fan sitting in premium seating expects real time high definition video availability showing racing action at all points on the race course, which is a complicated and expensive proposition for a facility of the size of the Motor Speedway. To remain relevant and attractive to younger, more technology savvy fans, IMS will offer technology improvements expected to include a distributed antennae system to improve cellular service, and other systems to improve wireless access and enable high definition streaming video on smart phones, tablets and other mobile electronic devices.
 - 3) Necessary Track Modifications. As mentioned above, a fourth major event at the Motor Speedway, the Grand Prix of Indianapolis, will debut in May 2014, on an upgraded Motor Speedway road course redesigned to maximize fan sight lines and highly competitive racing. These road course modifications are already underway and will be completed simultaneously with additional road course modifications for Brickyard 400 and the Moto GP events.
 - 4) Need for Seating Improvements. In order to drive the enhanced revenue of the Motor Speedway events upon which the long term success of the events vitally depends, IMS will offer seating improvements expected to include dramatically upgraded seating and entertainment options in the locations found most desirable by modern race fans. These enhancements are expected to include substantial upgrades to the first turn grandstands (Stands A, B and E), hospitality suite upgrades, new social platforms, Americans with Disabilities Act related enhancements and new elevators to the main stretch upper deck (the Paddock Penthouse).
 - 5) Need for Improved Access, Traffic Flow and Parking. Convenient and efficient vehicular ingress and egress which will greatly enhance the fan experience are a priority for events at the Motor Speedway, and are expected to occur in coordination with related improvements to be undertaken by (and at the cost of) the Town of Speedway, the Speedway Redevelopment Commission and the City of Indianapolis. The most impactful improvement expected would be a four lane connection, utilizing the existing Holt Road corridor, from 16th Street to 10th Street, thus enabling much more concentrated access to and from Interstate I-70 to the South of the Speedway. Corresponding sidewalk and traffic signal enhancements will also be required and expected.
 - 6) Investments to Retain or Attract Fans. Some projects are not exciting and do not, on their face, generate any or much return on investment; however, they may be necessary to retain customers and make the experience at the facility enjoyable for the race fans. Upgrades to restrooms are a classic example. Conversely, other

projects are designed to attract new fans, either through new events, appealing to certain demographics, or other strategies.

- 7) Need to Prioritize Projects: Although a substantial amount of proceeds will be available from the IFA Bonds to fund Improvements under the Act, projects in excess of such amount have been identified by IMS in the master planning process. Consequently, the board and management of IMS have some difficult decisions to make as to which projects, on balance, should have a higher priority than others and will provide the greater return and greater benefit to the Motor Speedway and the State economy and thus should be selected as Improvements to be funded from the IFA Bonds.

IMS (and at its direction, the IMS project team) recognized that identifying Improvements to be funded from IFA Bonds is an undertaking that has (and will continue to) involve a balancing a series of considerations, in some cases competing considerations given the limited funds and worthwhile projects, but that the selected Improvements would be undertaken to meet three primary objectives:

- (a) The Improvements would have a positive effect on the activities of the Motor Speedway.

The Improvements requested by IMS will be those that IMS expects to enhance the fan experiences at the Motor Speedway events, and lay the groundwork for additional events at the Motor Speedway and the expansion and further development of activities surrounding existing events.

- (b) The Improvements would benefit the public health and welfare and be of public utility and benefit.

The Improvements requested by IMS will be those that IMS expects to benefit the public health and welfare and to be of public utility and benefit in a variety of ways, both directly and indirectly. As noted, the heritage of the Motor Speedway is of tremendous public utility and benefit, both economic and non-economic value, to the State. The Improvements preserve and enhance that brand. As discussed below, the Improvements requested by IMS will be those that IMS expects to protect and increase the state and local tax bases and tax revenues, which provides great public utility and benefit. Improvements such as those through improved ingress and egress to the facility, will improve travel flow and safety on the public roads. Improvements such as those to the restrooms and to the food and beverage areas, as well as upgrades to grandstands and seating areas, will add public safety improvements which benefit public health and welfare. Finally, Improvements such as those to improve access for the handicapped will benefit the public health and welfare.

- (c) The Improvements would protect and increase state and local tax bases and tax revenues.

As noted above, one of the objectives is to design Improvements which will protect and increase state and local taxes and generate a return on investment. By designing Improvements with the goal of preserving loyal fans and attracting new fans through innovative Improvements to the Motor Speedway, IMS has determined it will maintain and increase attendance at its current events (as well as aid it in adding new and exciting events), which IMS concludes will support a finding that the Improvements will protect and increase state and local tax bases and tax revenues. In addition, through the new procedures designed in furtherance of purposes of the Act, the State will be better able to capture those taxes for the benefit of the citizens of the State.

IMS has identified the Improvements further described on the attached Annex III as worthwhile improvements to the Motor Speedway meeting the foregoing criteria, is pursuing the planning and design work therefor and expects that a significant portion of them to be undertaken with the funds expected to be made available to the IMS from proceeds of the IFA Bonds issued under the Act. The IMS is continuing to explore other sources and strategies for funding the portion of the Improvements which remain priorities but are not funded by the IFA Bonds.

IMS has requested that the Commission proceed forward with the establishment of the District and to continue undertaking activities in furtherance of the purposes of the Act. IMS contemplates that such activities will be guided by the foregoing, as design and development plans related to the Improvements continue and are determined with greater detail and specificity, and such will include arriving at a definitive development agreement among IMS (and certain of its related parties), the IFA and the Commission setting forth terms to establish and undertake such definitive Improvements.

In February, 2013, the Indiana University Public Policy Institute ("IUPPI") issued a report entitled "Estimating the Annual Economic Contributions of the Indianapolis Motor Speedway" ("IUPPI Report") which estimated the economic contributions, in the form of total economic activity, employment and employee compensation, made in the State of Indiana by the IMS. The IUPPI Report is based on historical revenue and spending data available at that time. The IUPPI Report is included in full in Annex II for your information.

IMS has engaged Policy Analytics, LLC ("Policy Analytics") to assess such economic contributions of IMS if the proposed Improvements were to be undertaken by IMS. Beginning with the historical baseline information set forth in the IUPPI Report, Policy Analytics produced the report included in Annex II (the "Policy Analytics Report") which takes into account such Improvements and the assumptions provided by the management of IMS in its projections for the period from 2013 through 2018.

As provided in the Policy Analytics Report, the increased attractiveness of the Motor Speedway, the additional events to be offered at the Motor Speedway and the new amenities made available at those events will produce a very significant increase in annual attendance projected to be in place by 2018. Increases in attendance, increased sponsorship opportunities and improved marketing will result in added "top line revenue" which will increase the

profitability of IMS. By 2018, IMS operations and revenues will have exhibited substantial growth and conformity with the growth in attendance.

The increased attendance and profitability have a favorable economic impact on IMS and will further impact and strengthen the Indiana economy within the important motorsports cluster, an Indiana economic sector currently estimated to encompass more than 24,000 firms, employing 421,000 individuals.⁵ Increases in attendance at IMS events will grow Indiana's tourism economy and the spending and sales tax revenues it produces. Tourism or visitor spending (only from visitors from outside Indiana) was estimated in the IUPPI Report to produce an economic contribution of more than \$145,000,000 in 2012. By 2018, based on the projections of IMS, it is estimated that visitors' spending will grow in economic impact to \$236,600,000 in an annual contribution to the economy of Indiana.

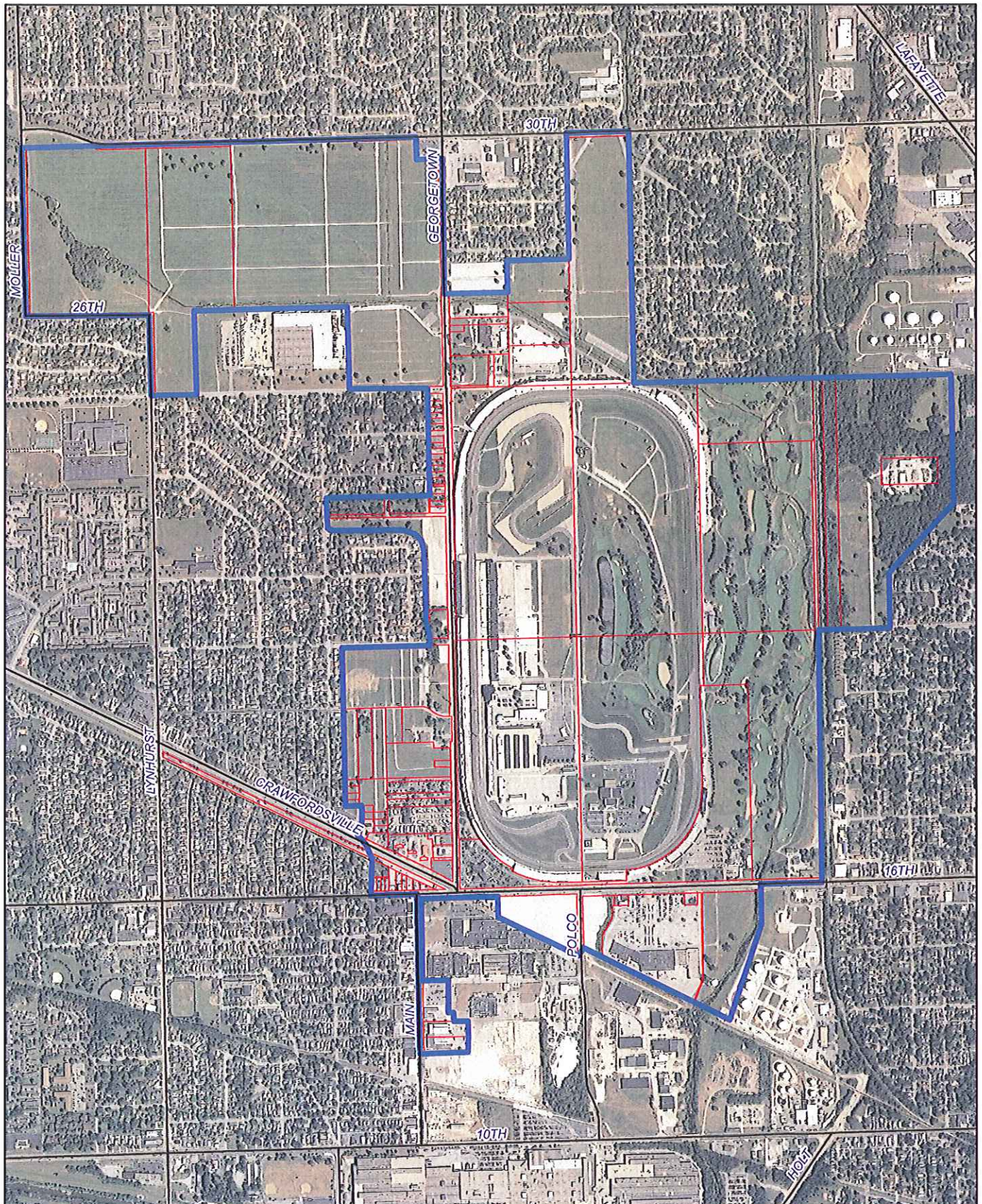
The growth in the operations of IMS and in the motorsports sector generally will produce additional individual and corporate income tax revenue for Indiana. The increases in both revenue and profitability are expected to increase taxable income for both employees and contractors within the motorsports sector. By 2018, IMS activities related income tax base is projected to increase by 47% from current levels. Finally, the economic contribution of IMS to Indiana is anticipated to grow by more than 240% over the 20 year life of the IFA Bonds, with income and sales tax revenues responding proportionately.

⁵ *Race to the Future: The Statewide Impact of Motorsports in Indiana*, Purdue Center for Regional Development, September, 2012. See Annex II.

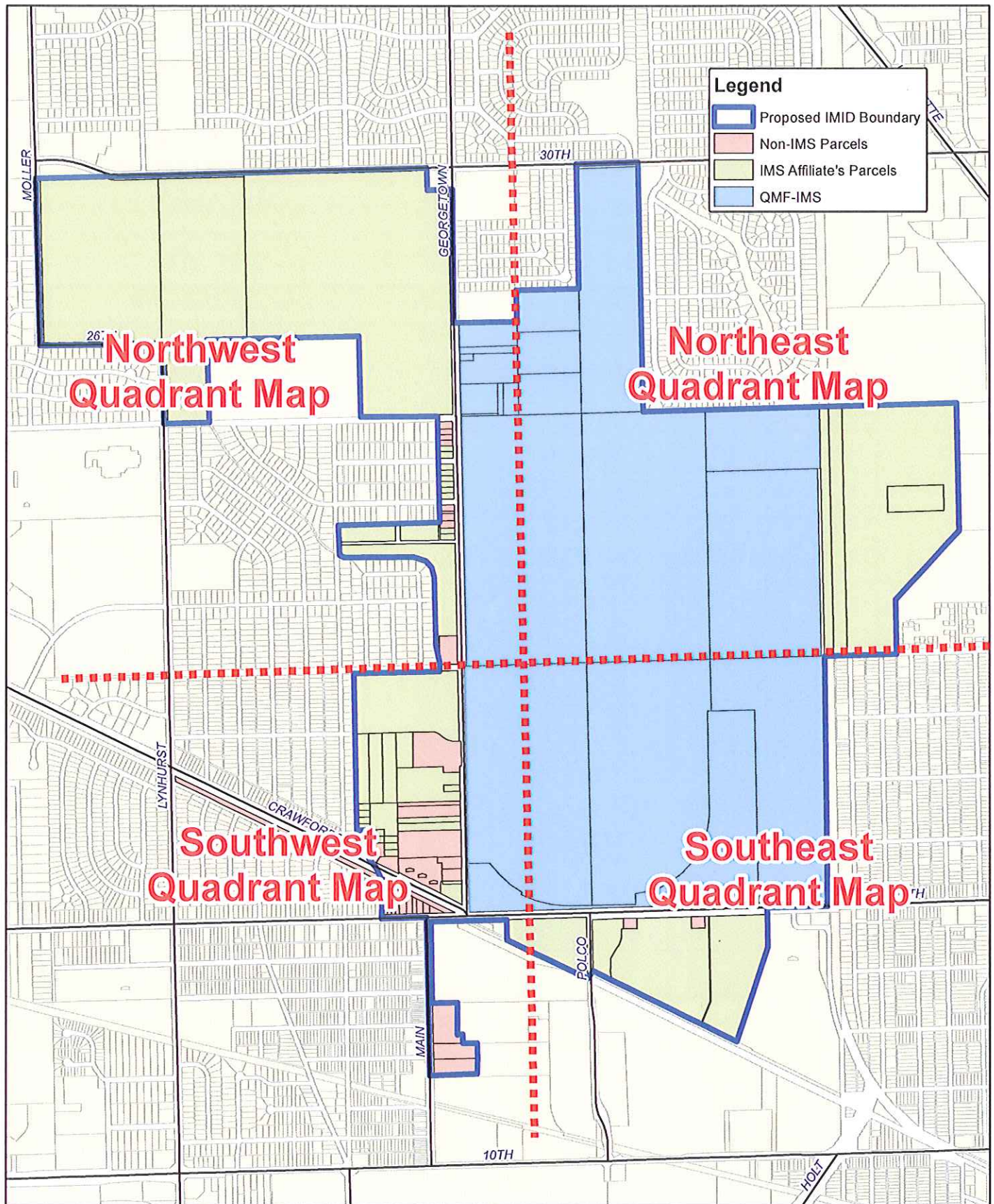
**ANNEX I
TO
EXHIBIT A (IMPROVEMENT PLAN)**

[Quadrant Maps, Satellite Overlay and Directory of Parcels]

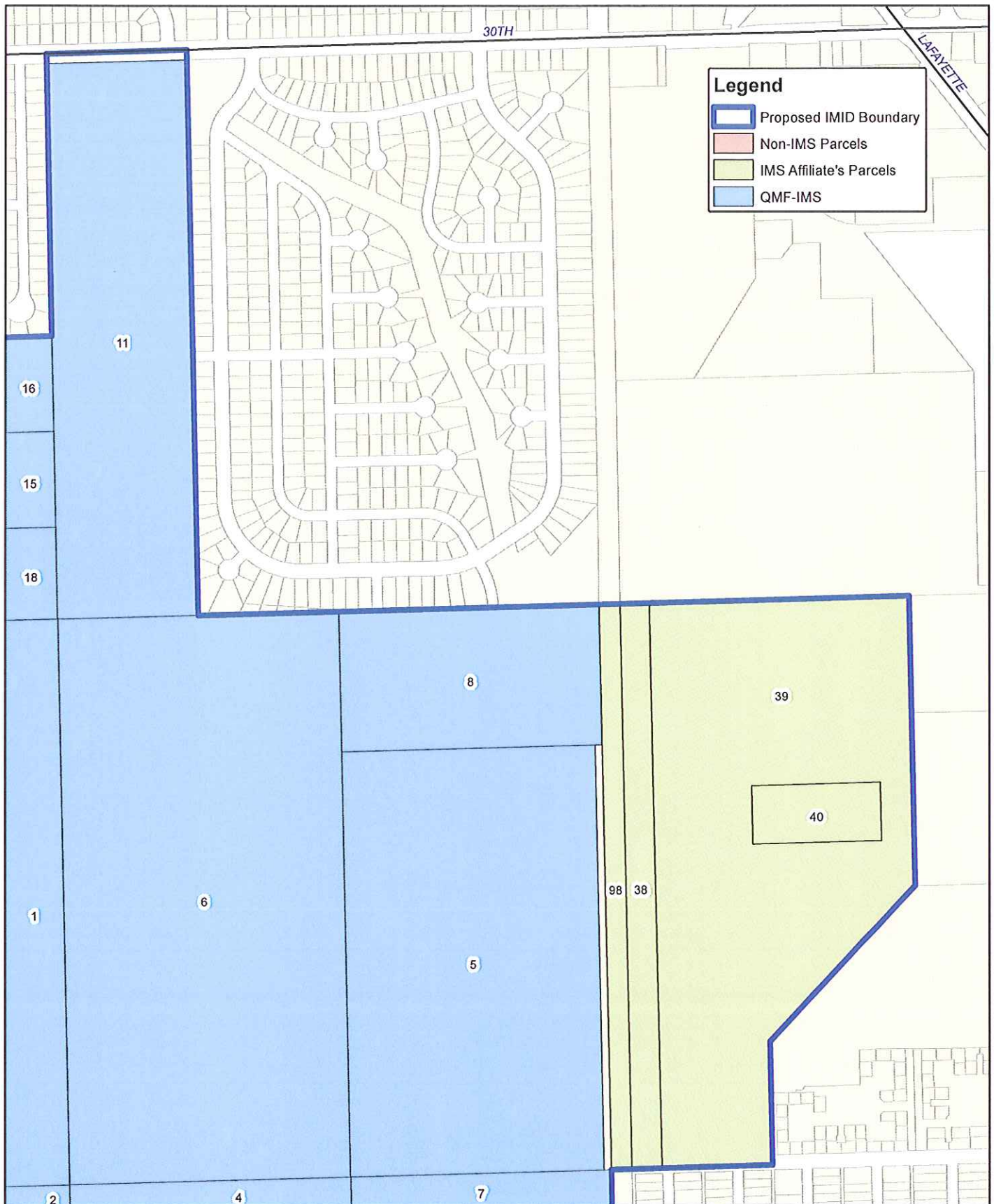
IMID Boundary with IMS Affiliated Parcels (Indexed) Quadrant Maps - Satellite Overlay



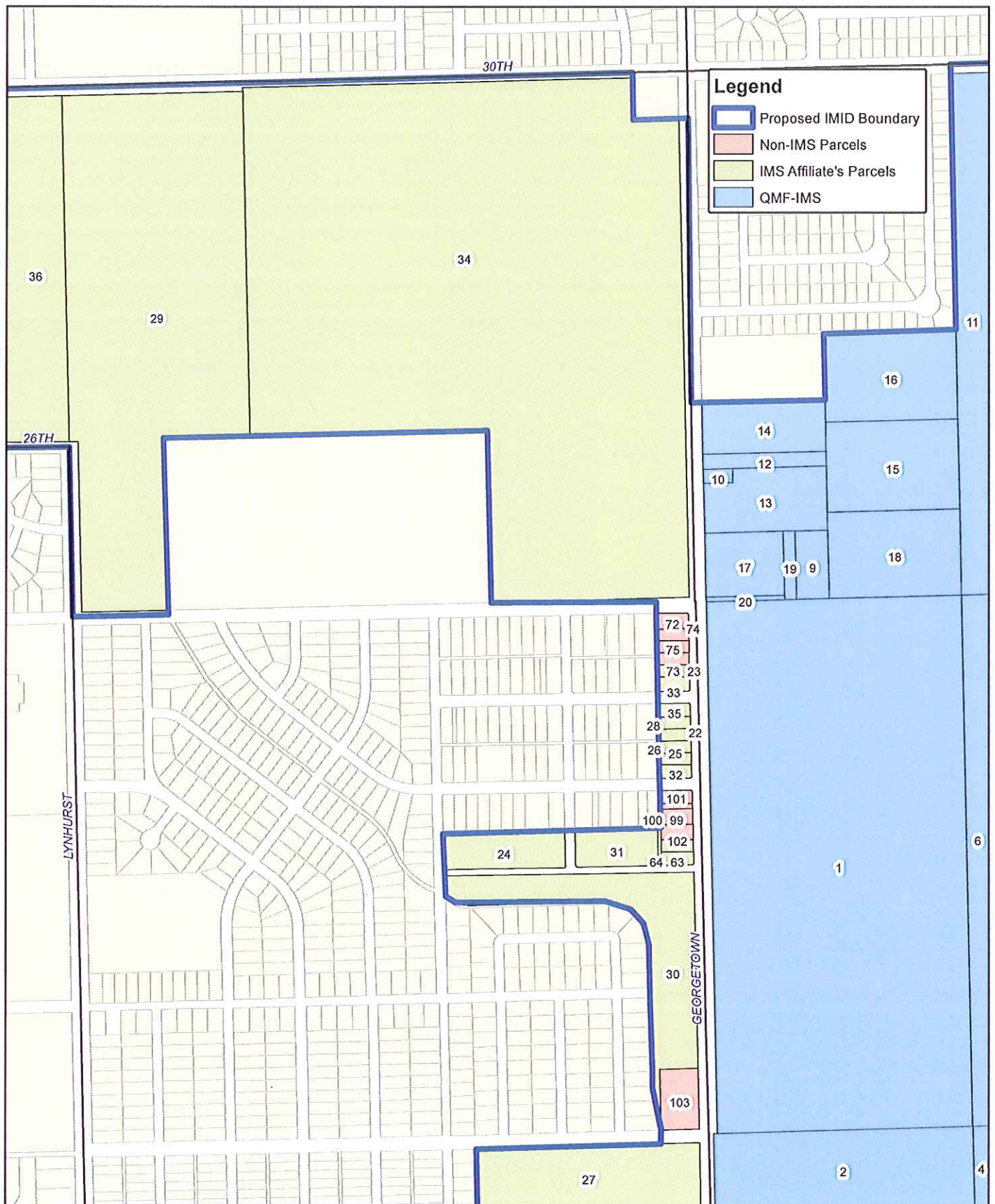
IMID Boundary with IMS Affiliated Parcels (Indexed) Quadrant Maps



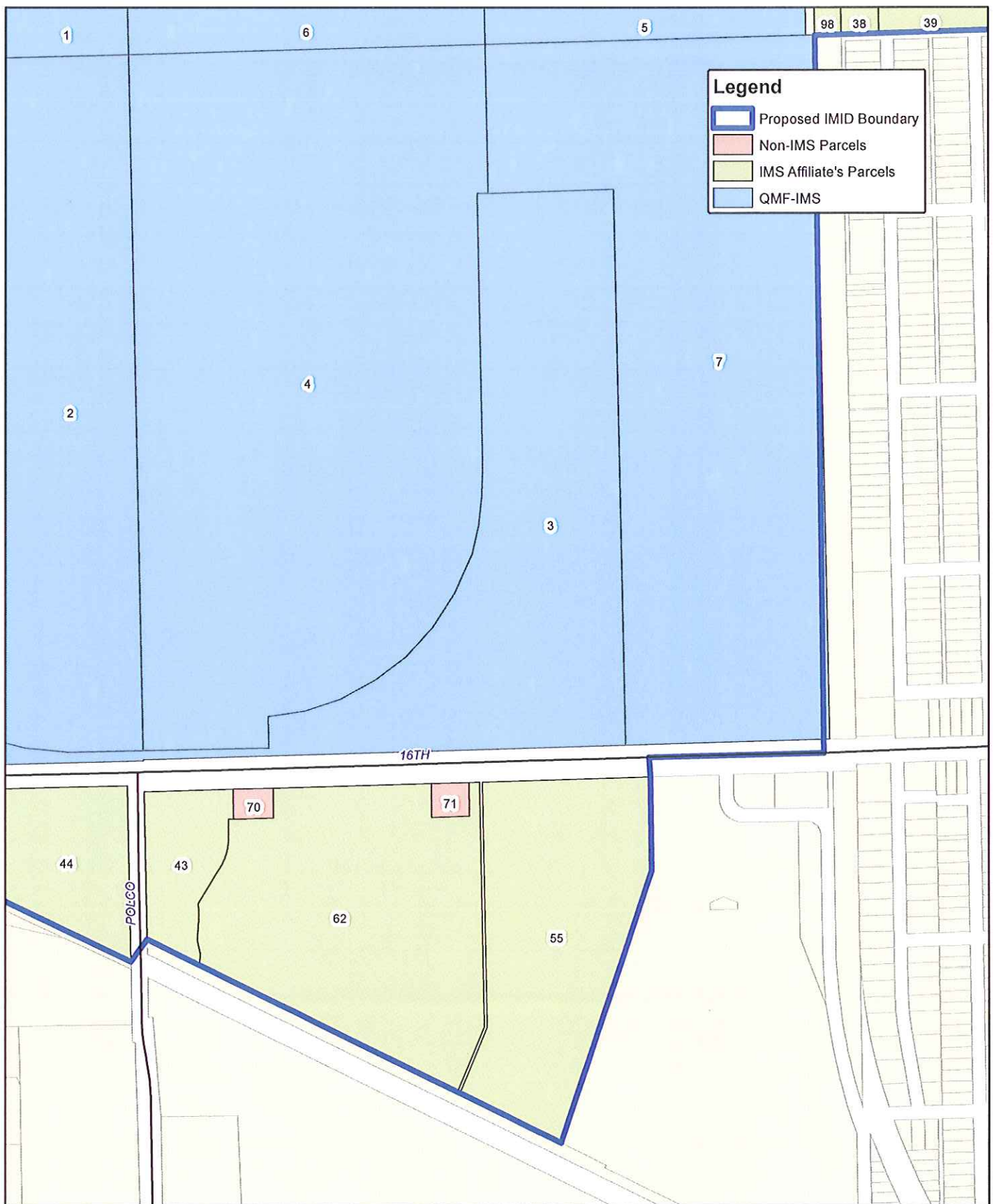
IMID Boundary with IMS Affiliated Parcels (Indexed) Northeast Quadrant



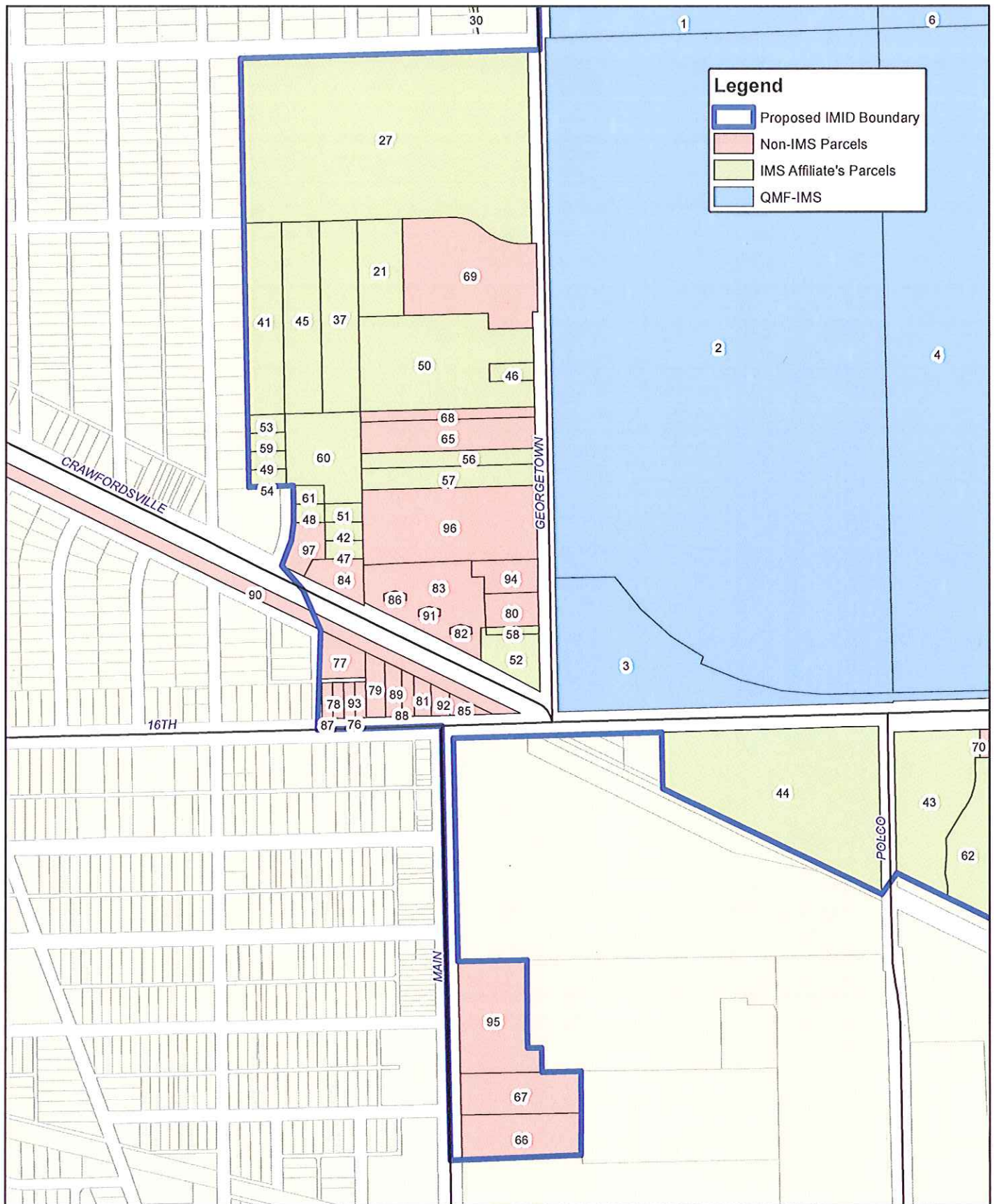
IMID Boundary with IMS Affiliated Parcels (Indexed) Northwest Quadrant



IMID Boundary with IMS Affiliated Parcels (Indexed) Southeast Quadrant



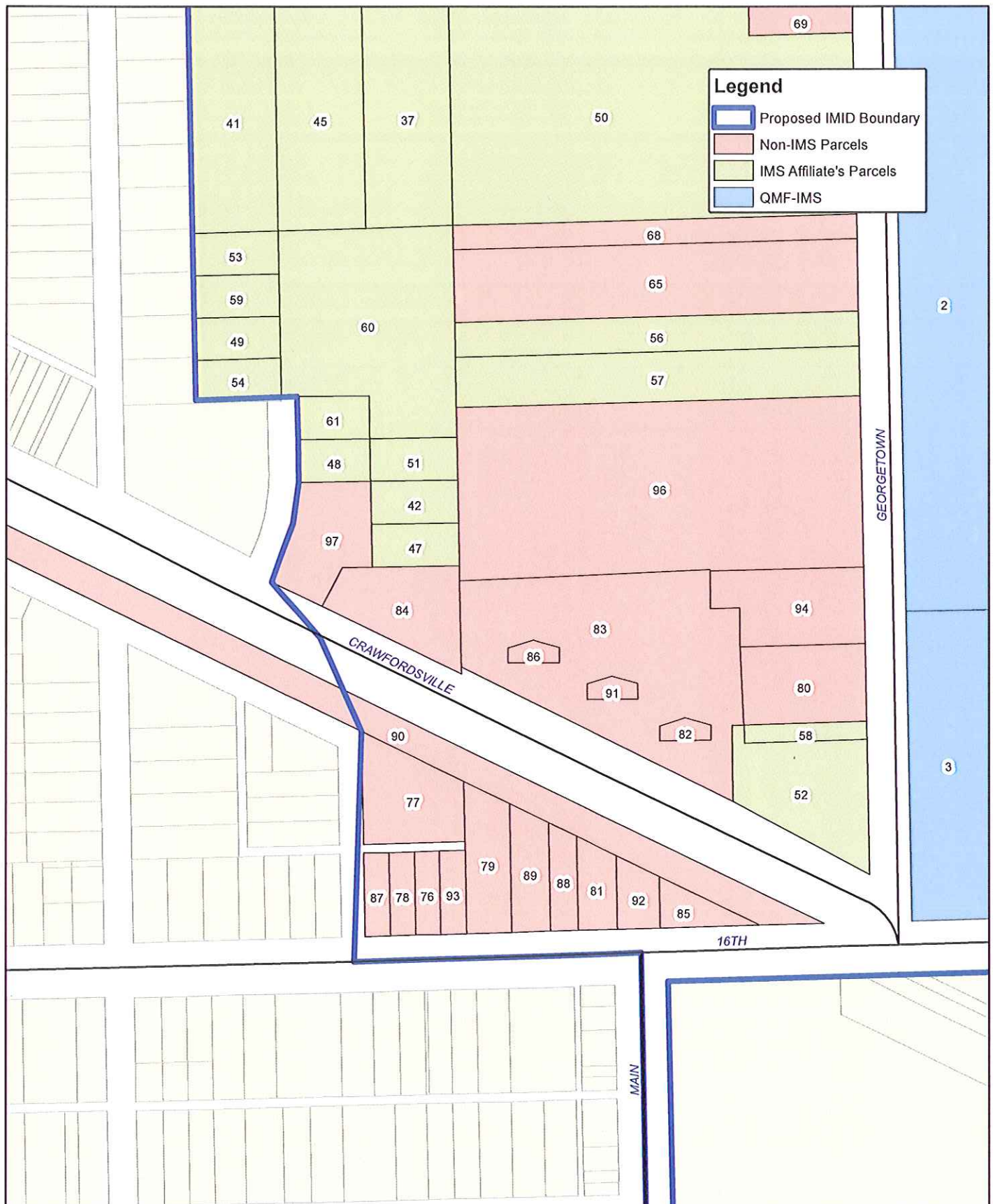
IMID Boundary with IMS Affiliated Parcels (Indexed) Southwest Quadrant



IMID Boundary with IMS Affiliated Parcels (Indexed)
Northwest Quadrant - Detailed View



IMID Boundary with IMS Affiliated Parcels (Indexed) Southwest Quadrant - Detailed View



Directory of Parcels Included in the Indiana Motorsports District Per HEA 1544

QMF - IMS

QMF - IMS			Description of Motorsports Related Use/Reason for Inclusion	
Ind #	Parcel #	Owner per Property Tax Records	Address	Ownership, Relationship to QMF
1	9002368	INDIANAPOLIS MOTOR SPEEDWAY LLC	4700 W 16TH ST	Parcel owned by QMF; IC 5-1-17.5-24(c)(1)
2	9002369	INDIANAPOLIS MOTOR SPEEDWAY LLC	4700 W 16TH ST	Parcel owned by QMF; IC 5-1-17.5-24(c)(1)
3	9058634	INDIANAPOLIS MOTOR SPEEDWAY LLC	4700 W 16TH ST	IMS, SW quadrant
4	9002370	INDIANAPOLIS MOTOR SPEEDWAY LLC	4700 W 16TH ST	IMS, turn 2 stands, admin bldg, golf course
5	9009315	INDIANAPOLIS MOTOR SPEEDWAY LLC	4700 W 16TH ST	Parcel owned by QMF; IC 5-1-17.5-24(c)(1)
6	9002367	INDIANAPOLIS MOTOR SPEEDWAY LLC	4700 W 16TH ST	IMS, SE quadrant
7	9002371	INDIANAPOLIS MOTOR SPEEDWAY LLC	4700 W 16TH ST	IMS, and golf course
8	9025169	INDIANAPOLIS MOTOR SPEEDWAY LLC	4700 W 16TH ST	IMS, NE quadrant
9	9001643	INDIANAPOLIS MOTOR SPEEDWAY LLC	4700 W 16TH ST	IMS, golfcourse
10	9039804	INDIANAPOLIS MOTOR SPEEDWAY LLC	4790 W 16TH ST	IMS, service building
11	9006972	INDIANAPOLIS MOTOR SPEEDWAY LLC	4790 W 16TH ST	IMS, service area, event parking
12	9004565	INDIANAPOLIS MOTOR SPEEDWAY LLC	4790 W 16TH ST	IMS, service area, event parking
13	9000105	INDIANAPOLIS MOTOR SPEEDWAY LLC	4790 W 16TH ST	IMS, access drive to service area
14	9040094	INDIANAPOLIS MOTOR SPEEDWAY LLC	4790 W 16TH ST	IMS, service buildings
15	9004564	INDIANAPOLIS MOTOR SPEEDWAY LLC	4790 W 16TH ST	IMS, service area, event parking
16	9004563	INDPLS MOTOR SPEEDWAY CORP	4790 W 16TH ST	IMS, service area, event parking
17	9010127	INDIANAPOLIS MOTOR SPEEDWAY LLC & RAYMOND T	2515 GEORGETOWN RD	IMS, service area, event parking
18	9000104	INDIANAPOLIS MOTOR SPEEDWAY LLC	4790 W 16TH ST	IMS, service area, event parking
19	9012216	SPEEDWAY, INDIANAPOLIS	4790 W 16TH ST	IMS, service area, event parking
20	9033035	INDIANAPOLIS MOTOR SPEEDWAY LLC	4790 W 16TH ST	IMS, service buildings
				IMS, service access area

IMS AFFILIATES' PARCELS

21	9029443	GEORGETOWN REALTY CO INC	4800 W 20TH ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	IMS event parking
22	9002696	GEORGETOWN REALTY	2370 GEORGETOWN RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	IMS event parking
23	9002538	GEORGETOWN REALTY	2404 GEORGETOWN RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	IMS event parking
24	9002263	INDIANAPOLIS MOTOR SPEEDWAY LLC	4790 W 16TH ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
25	9002116	GEORGETOWN REALTY COMPANY	2358 GEORGETOWN RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	IMS event parking
26	9002457	GEORGETOWN REALTY COMPANY	2358 GEORGETOWN RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	IMS event parking
27	9030166	GEORGETOWN REALTY CO INC	2044 GEORGETOWN RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
28	9002697	GEORGETOWN REALTY	2378 GEORGETOWN RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	IMS event parking
29	9013923	GEORGETOWN REALTY CO	W 30TH ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Vendors, Event parking, Camping, Event operations
30	9002477	INDIANAPOLIS MOTOR SPEEDWAY LLC	2200 GEORGETOWN RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Suite & Handicap parking, Vendor Sales, camping
31	9002272	INDIANAPOLIS MOTOR SPEEDWAY LLC	4790 W 16TH ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
32	9002654	GEORGETOWN REALTY COMPANY INC	2352 GEORGETOWN RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	IMS event parking
33	9002537	GEORGETOWN REALTY	2402 GEORGETOWN RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	IMS event parking
34	9005785	GEORGETOWN REALTY CO	4950 W 25TH ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
35	9002460	GEORGETOWN REALTY CO INC	2382 GEORGETOWN RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	IMS event parking
36	9013921	GEORGETOWN REALTY CO	MOLLER RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
37	9029453	GEORGETOWN REALTY CO INC	4901 W 20TH ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
38	9044031	GEORGETOWN REALTY CO INC	2500 N TIBBS AVE	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Storage area, Future solar farm w rental income
39	9056228	GEORGETOWN REALTY CO INC	W 21ST ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Storage area, Future solar farm w rental income
40	9047422	GEORGETOWN REALTY CO INC	W 21ST ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Storage area, Future solar farm w rental income
41	9029424	GEORGETOWN REALTY CO INC	1900 CORD ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
42	9029440	GEORGETOWN REALTY CO INC	1800 N COLE ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
43	9033412	GEORGETOWN REALTY COMPANY	4665 W 16TH ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	IMS event parking
44	9024921	GEORGETOWN REALTY COMPANY	4717 W 16TH ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	IMS event parking
45	9029454	GEORGETOWN REALTY CO INC	4949 W 20TH ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
46	9032491	GEORGETOWN REALTY CO INC	1836 GEORGETOWN RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
47	9029441	GEORGETOWN REALTY CO INC	1700 N COLE ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
48	9029432	GEORGETOWN REALTY CO INC	1700 CORD ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
49	9029445	GEORGETOWN REALTY CO INC	1800 CORD ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
50	9003019	INDIANAPOLIS MOTOR SPEEDWAY LLC	1800 GEORGETOWN RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
51	9029439	GEORGETOWN REALTY CO INC	1800 N COLE ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
52	9002955	GEORGETOWN REALTY COMPANY	4802 CRAWFORDSVILLE RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Vendor Displays, parking

Directory of Parcels Included in the Indiana Motorsports District Per HEA 1544

Description of Motorsports Related Use/Reason for

Ind #	Parcel #	Owner per Property Tax Records	Address	Ownership, Relationship to QMF	Inclusion
53	9029464	GEORGETOWN REALTY CO INC	1800 CORD ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
54	9029425	GEORGETOWN REALTY CO INC	1800 CORD ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
55	9027291	INDIANAPOLIS MOTOR SPEEDWAY LLC	1304 OLIN AVE	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	IMS event parking, Camping
56	9002721	GEORGETOWN REALTY CO INC	1806 GEORGETOWN RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
57	9027323	GEORGETOWN REALTY CO INC	1802 GEORGETOWN RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
58	9025148	GEORGETOWN REALTY COMPANY	1700 GEORGETOWN RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Vendor Displays, parking
59	9029446	GEORGETOWN REALTY CO INC	1800 CORD ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
60	9029449	GEORGETOWN REALTY CO INC	1800 CORD ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
61	9029433	GEORGETOWN REALTY CO INC	1700 CORD ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Event parking, Camping
62	9027318	GEORGETOWN REALTY CO INC	4500 W 16TH ST	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	IMS Operations, IndyCar Offices, Event parking
63	9024911	INDIANAPOLIS MOTOR SPEEDWAY LLC	2302 GEORGETOWN RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	IMS event parking, Vendor Sales
64	9002201	GEORGETOWN REALTY	2308 GEORGETOWN RD	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	IMS event parking, Vendor Sales
98	9003200	PENN CENTRAL CORP	2500 N TIBBS AVE	IMS/Affiliate owned; IC 5-1-17.5-24 (c)(2)	Railroad right-of-way

NON-IMS PARCELS

65	9002720	WILCOX MGT CORP	1818 GEORGETOWN RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Event parking, Camping
66	9025165	DALLARA USA HOLDING INC	1201 MAIN ST	Motorsports activities; IC 5-1-17.5-24 (c)(3)	IndyCar chassis mfg, Track testing, driver training
67	9025164	DALLARA USA HOLDING INC	1201 MAIN ST	Motorsports activities; IC 5-1-17.5-24 (c)(3)	IndyCar chassis mfg, Track testing, driver training
68	9031801	WILCOX MGT CORP	1800 GEORGETOWN RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Event parking, Camping
69	9029450	SPEEDWAY POST 500 INC AMERICAN LEGION	1926 GEORGETOWN RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	IMS event parking
70	9041511	LUEBBERT, JAMES R &	4601 W 16TH ST	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Gas Station, Event parking
71	9041512	BISHOP, GERALD L &	4501 W 16TH ST	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Gas Station, Event parking
72	9002205	D C A INC	2490 GEORGETOWN RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	IMS event parking
73	9002539	DUMAN, BETTY J &	2408 GEORGETOWN RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	IMS event parking
74	9002204	D C A INC	2490 GEORGETOWN RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	IMS event parking
75	9002203	DUMAN, BETTY J &	2420 GEORGETOWN RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	IMS event parking
76	9002996	MILLER, LARRY K &	4928 W 16TH ST	Motorsports activities; IC 5-1-17.5-24 (c)(3)	IMS event parking
77	9002621	REYNOLDS, JOHN R	1617 CORD ST	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Vendor Displays, parking
78	9025170	WOOD, WILLIAM M	4932 W 16TH ST	Motorsports activities; IC 5-1-17.5-24 (c)(3)	IMS event parking
79	9002562	BUNCH, BETTE P	4916 W 16TH ST	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Vendor Displays, parking
80	9043288	BERMAN, ELLEN R 1/6 &	1638 GEORGETOWN RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Vendor Displays, parking
81	9025079	TOWN OF SPEEDWAY REDEVELOPMENT	4904 W 16TH ST	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Vendor Displays, parking
82	9043315	BERMAN, ELLEN R 1/6,	4880 CRAWFORDSVILLE RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Vendor Displays, parking
83	9002405	BERMAN, ELLEN R 1/6 &	4880 CRAWFORDSVILLE RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Vendor Displays, parking
84	9002406	ZELMAN, BERNARD L TRUSTEE	4900 CRAWFORDSVILLE RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Vendor Displays, parking
85	9045917	SPIRIT SPE PORTFOLIO	4900 W 16TH ST	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Vendor Displays, parking
86	9050387	BERMAN, ELLEN R 1/6,	4920 CRAWFORDSVILLE RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	IMS event parking
87	9002373	ECKERT, PAUL W AS TRUSTEE	4936 W 16TH ST	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Vendor Displays, parking
88	9041513	UNITED STATES AUTO CLUB INC	4910 W 16TH ST	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Vendor Displays, parking
89	9002317	UNITED STATES AUTO CLUB INC	4914 W 16TH ST	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Vendor Displays, parking
90	9048764	M & J LIMITED PARTNERSHIP	CRAWFORDSVILLE RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Vendor Displays, Camping, parking
91	9043755	BERMAN, ELLEN R 1/6,	4884 CRAWFORDSVILLE RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Vendor Displays, parking
92	9002468	TOWN OF SPEEDWAY REDEVELOPMENT	4900 W 16TH ST	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Vendor Displays, parking
93	9002620	BUNCH, BETTE	4924 W 16TH ST	Motorsports activities; IC 5-1-17.5-24 (c)(3)	IMS event parking
94	9027033	BEAUDRY, ROBERT P &	1652 GEORGETOWN RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Vendor Displays, parking
95	9058767	HARTMAN RACING LLC	1315 MAIN ST	Motorsports activities; IC 5-1-17.5-24 (c)(3)	IndyCar Team
96	9002482	SPEEDWAY PROPERTIES LLC	1708 GEORGETOWN RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Event parking, Camping
97	9029451	ILU REALTY ASSOCIATES	4948 CRAWFORDSVILLE RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Vendor Displays, parking
99	9002360	BRICKER, BEVERLY &	2320 GEORGETOWN RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	IMS event parking
100	9025034	HOLTSCLAW, WILLIAM THOMAS	2332 GEORGETOWN RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	IMS event parking
101	9025035	HOLTSCLAW, WILLIAM THOMAS	2332 GEORGETOWN RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	IMS event parking
102	9056740	GARDNER, JAMES A/K/A	2314 GEORGETOWN RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	IMS event parking
103	9025092	DILLER, JAMES E SR &	2106 GEORGETOWN RD	Motorsports activities; IC 5-1-17.5-24 (c)(3)	Vendor Displays, Camping, parking

Directory of Parcels Included in the Indiana Motorsports District Per HEA 1544

QMF - IMS

Ind #	Parcel #	Owner per Property Tax Records	Detailed Use of Parcel	Non-Event Related Uses	Prop. Class #
1	9002368	INDIANAPOLIS MOTOR SPEEDWAY LLC	Racing	None	399
2	9002369	INDIANAPOLIS MOTOR SPEEDWAY LLC	Racing	None	399
3	9058634	INDIANAPOLIS MOTOR SPEEDWAY LLC	Golf course	Golf course	399
4	9002370	INDIANAPOLIS MOTOR SPEEDWAY LLC	Racing	None	399
5	9009315	INDIANAPOLIS MOTOR SPEEDWAY LLC	Golf course	Golf course	399
6	9002367	INDIANAPOLIS MOTOR SPEEDWAY LLC	Racing	None	399
7	9002371	INDIANAPOLIS MOTOR SPEEDWAY LLC	Golf course	Golf course	399
8	9025169	INDIANAPOLIS MOTOR SPEEDWAY LLC	Golf course	Golf course	399
9	9001643	INDIANAPOLIS MOTOR SPEEDWAY LLC	Racing event support	None	399
10	9039804	INDIANAPOLIS MOTOR SPEEDWAY LLC	Racing event support	None	399
11	9006972	INDIANAPOLIS MOTOR SPEEDWAY LLC	Racing event support	None	399
12	9004565	INDIANAPOLIS MOTOR SPEEDWAY LLC	Racing event support	None	399
13	9000105	INDIANAPOLIS MOTOR SPEEDWAY LLC	Racing event support	None	399
14	9040094	INDIANAPOLIS MOTOR SPEEDWAY LLC	Racing event support	None	399
15	9004564	INDIANAPOLIS MOTOR SPEEDWAY LLC	Racing event support	None	399
16	9004563	INDPLS MOTOR SPEEDWAY CORP	Racing event support	None	399
17	9010127	INDIANAPOLIS MOTOR SPEEDWAY LLC & RAYMOND T	Racing event support	None	511
18	9000104	INDIANAPOLIS MOTOR SPEEDWAY LLC	Racing event support	None	399
19	9012216	SPEEDWAY, INDIANAPOLIS	Racing event support	None	399
20	9033035	INDIANAPOLIS MOTOR SPEEDWAY LLC	Racing event support	None	399

IMS AFFILIATES' PARCELS

21	9029443	GEORGETOWN REALTY CO INC	Vacant; grass parking	None	399
22	9002696	GEORGETOWN REALTY	Vacant; grass parking	None	500
23	9002538	GEORGETOWN REALTY	Vacant; grass parking	None	500
24	9002263	INDIANAPOLIS MOTOR SPEEDWAY LLC	Vacant; parking and camping	None	500
25	9002116	GEORGETOWN REALTY COMPANY	Vacant; grass parking	None	500
26	9002457	GEORGETOWN REALTY COMPANY	Vacant; grass parking	None	500
27	9030166	GEORGETOWN REALTY CO INC	Vacant; grass parking (Handicap Parking); Suite parking	None	399
28	9002697	GEORGETOWN REALTY	Vacant; grass parking	None	500
29	9013923	GEORGETOWN REALTY CO	Vacant; grass parcels	None	399
30	9002477	INDIANAPOLIS MOTOR SPEEDWAY LLC	Vacant; grass parking; Suite parking	None	399
31	9002272	INDIANAPOLIS MOTOR SPEEDWAY LLC	Vacant; parking and camping	None	500
32	9002654	GEORGETOWN REALTY COMPANY INC	Vacant; grass parking	None	500
33	9002537	GEORGETOWN REALTY	Vacant; grass parking	None	510
34	9005785	GEORGETOWN REALTY CO	Vacant; grass parking	None	399
35	9002460	GEORGETOWN REALTY CO INC	Vacant; grass parking	None	500
36	9013921	GEORGETOWN REALTY CO	Vacant; grass parking	None	399
37	9029453	GEORGETOWN REALTY CO INC	Vacant; grass parking	None	399
38	9044031	GEORGETOWN REALTY CO INC	Solar Farm Area - Storage of IMS equipment	Power generation - lease fees to IMS	399
39	9056228	GEORGETOWN REALTY CO INC	Solar Farm Area - Storage of IMS equipment	Power generation - lease fees to IMS	399
40	9047422	GEORGETOWN REALTY CO INC	Solar Farm Area; w/ maintenance bldg	Power generation - lease fees to IMS	399
41	9029424	GEORGETOWN REALTY CO INC	Vacant; grass parking	None	399
42	9029440	GEORGETOWN REALTY CO INC	Vacant; grass parking	None	399
43	9033412	GEORGETOWN REALTY COMPANY	Parking adjacent to IMS productions - No structures	None	399
44	9024921	GEORGETOWN REALTY COMPANY	Parking adjacent to IMS productions - No structures	None	399
45	9029454	GEORGETOWN REALTY CO INC	Vacant; grass parking	None	399
46	9032491	GEORGETOWN REALTY CO INC	Vacant; grass parking	None	399
47	9029441	GEORGETOWN REALTY CO INC	Vacant; grass parking	None	399
48	9029432	GEORGETOWN REALTY CO INC	Vacant; grass parking	None	399
49	9029445	GEORGETOWN REALTY CO INC	Vacant; grass parking	None	399
50	9003019	INDIANAPOLIS MOTOR SPEEDWAY LLC	Vacant; grass parking	None	399
51	9029439	GEORGETOWN REALTY CO INC	Vacant; grass parking	None	399
52	9002955	GEORGETOWN REALTY COMPANY	Vacant; no structure; parking	None	399

Directory of Parcels Included in the Indiana Motorsports District Per HEA 1544

Ind #	Parcel #	Owner per Property Tax Records	Detailed Use of Parcel	Non-Event Related Uses	Prop. Class #
53	9029464	GEORGETOWN REALTY CO INC	Vacant; grass parking	None	399
54	9029425	GEORGETOWN REALTY CO INC	Vacant; grass parking	None	399
55	9027291	INDIANAPOLIS MOTOR SPEEDWAY LLC	Grass Parking, Adjacent to IMS productions - No structures	None	399
56	9002721	GEORGETOWN REALTY CO INC	Mobile Home parking; vacant in offseason	None	415
57	9027323	GEORGETOWN REALTY CO INC	Mobile Home parking; vacant in offseason	None	415
58	9025148	GEORGETOWN REALTY COMPANY	Vacant; parking and camping	None	399
59	9029446	GEORGETOWN REALTY CO INC	Vacant; grass parking	None	399
60	9029449	GEORGETOWN REALTY CO INC	Vacant; grass parking	None	399
61	9029433	GEORGETOWN REALTY CO INC	Vacant; grass parking	None	399
62	9027318	GEORGETOWN REALTY CO INC	IMS Prod's, IMS Food and Bev Dept; IMS Gift Shop Warehouse	Doug's Barber shop, SONAX	426
63	9024911	INDIANAPOLIS MOTOR SPEEDWAY LLC	Vacant; grass parking	None	500
64	9002201	GEORGETOWN REALTY	Vacant; grass parking	None	500
98	9003200	PENN CENTRAL CORP	Railroad right of way	None	841
NON-IMS PARCELS					
65	9002720	WILCOX MGT CORP	Wicox Mobile Home Park	Mobile home park - trailers occupied	415
66	9025165	DALLARA USA HOLDING INC	Dallara Racing	Dallara / Indy Racing related operations	340
67	9025164	DALLARA USA HOLDING INC	Dallara Racing	Dallara / Indy Racing related operations	340
68	9031801	WILCOX MGT CORP	Wicox Mobile Home Park	Mobile home park - trailers occupied	415
69	9029450	SPEEDWAY POST 500 INC AMERICAN LEGION	American Legion Building; parking during IMS events	American Legion Hall	699
70	9041511	LUEBBERT, JAMES R &	Speedway Monogramming; Vacant vendor space	commercial monogramming business	420
71	9041512	BISHOP, GERALD L &	Vacant commercial structure (former bar); closed, boarded up	None currently	430
72	9002205	D C A INC	Vacant; grass parking	None	429
73	9002539	DUMAN, BETTY J &	Occupied residence	Residential	510
74	9002204	D C A INC	Small commercial structure (vendor area)	None currently	429
75	9002203	DUMAN, BETTY J &	Occupied residence	Residential	510
76	9002996	MILLER, LARRY K &	Residential; Occupied	Residential	510
77	9002621	REYNOLDS, JOHN R	Residential Occupied	Residential	510
78	9025170	WOOD, WILLIAM M	Residential Occupied	Residential	510
79	9002562	BUNCH, BETTE P	Brick Building; Offices; Bradley Financial	Commercial financial business	447
80	9043288	BERMAN, ELLEN R 1/6 &	Indy Screen Print; Indystore Factory Outlet	Commercial	420
81	9025079	TOWN OF SPEEDWAY REDEVELOPMENT	Vacant; parking only	None	640
82	9043315	BERMAN, ELLEN R 1/6,	Vacant; structures demolished	None	420
83	9002405	BERMAN, ELLEN R 1/6 &	Vacant; parking only	None	420
84	9002406	ZELMAN, BERNARD L TRUSTEE	Indianapolis Window Tinting; Inc	Commercial	452
85	9045917	SPIRIT SPE PORTFOLIO	Vacant; parking only	None	431
86	9050387	BERMAN, ELLEN R 1/6,	Vacant; structures demolished	None	455
87	9002373	ECKERT, PAUL W AS TRUSTEE	Residential Occupied; remove from residential	Residential	520
88	9041513	UNITED STATES AUTO CLUB INC	US Auto Club Building	None	699
89	9002317	UNITED STATES AUTO CLUB INC	US Auto Club Building	None	699
90	9048764	M & J LIMITED PARTNERSHIP	Grass strip between Speedway Dr - Crawfordsville Rd; pathway	None	456
91	9043755	BERMAN, ELLEN R. 1/6,	Vacant; structures demolished	None	420
92	9002468	TOWN OF SPEEDWAY REDEVELOPMENT	Vacant; parking only	None	640
93	9002620	BUNCH, BETTE	Residential; Occupied	Residential	510
94	9027033	BEAUDRY, ROBERT P &	El Lou Mobile Home Park Office	Mobile home park Office - residence occupied	420
95	9058767	HARTMAN RACING LLC	Sarah Hartment Racing Team	None	340
96	9002482	SPEEDWAY PROPERTIES LLC	El Lou Mobile Home Park	Mobile home park - trailers occupied	415
97	9029451	ILI REALTY ASSOCIATES	Pit Stop Liquors; and vacant vendor space	None	452
99	9002360	BRICKER, BEVERLY &	Occupied residence	Residential	510
100	9025034	HOLTSCLAW, WILLIAM THOMAS	Easement b/t two occupied houses	None	500
101	9025035	HOLTSCLAW, WILLIAM THOMAS	Occupied residence	Residential	510
102	9056740	GARDENER, JAMES A/K/A	Vacant; grass parking	None	500
103	9025092	DILLER, JAMES E SR &	Resid structure; non-occupied; vacant grass parking	None	511

Directory of Parcels Included in the Indiana Motorsports District Per HEA 1544

QMF - IMS

Ind #	Parcel #	Owner per Property Tax Records	Prop Class Name	Acres	Land AV	Improvement AV	Total AV
1	9002368	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	78.71	4,878,700	9,955,300	14,834,000
2	9002369	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	72.35	4,388,400	28,894,900	33,283,300
3	9058634	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	37.60	735,000	7,504,300	8,239,300
4	9002370	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	71.37	2,619,300	6,138,500	8,757,800
5	9009315	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	55.14	287,500	-	287,500
6	9002367	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	81.49	4,494,500	5,371,600	9,866,100
7	9002367	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	51.83	81,200	1,572,500	1,653,700
8	9025169	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	18.70	61,600	-	61,600
9	9001643	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	1.30	59,000	-	59,000
10	9039804	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	0.24	14,600	-	14,600
11	9006972	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	39.99	1,799,000	274,000	2,073,000
12	9045565	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	1.07	50,900	-	50,900
13	9000105	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	4.34	319,800	606,600	926,400
14	9040094	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	3.69	268,600	242,100	510,700
15	9004564	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	6.87	444,200	1,800	446,000
16	9004563	INDPLS MOTOR SPEEDWAY CORP	OTHER INDUSTRIAL STRUCTURES-399	6.80	479,500	3,700	483,200
17	9010127	INDIANAPOLIS MOTOR SPEEDWAY LLC & RAYMOND T	RES ONE FAMILY UNPLAT 0-9-99-511	2.92	44,900	122,100	167,000
18	9000104	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	6.60	335,700	61,900	397,600
19	9012216	SPEEDWAY, INDIANAPOLIS	OTHER INDUSTRIAL STRUCTURES-399	0.47	34,900	200	35,100
20	9033035	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	0.21	7,700	-	7,700

IMS AFFILIATES' PARCELS

21	9029443	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	1.55	94,100	-	94,100
22	9002696	GEORGETOWN REALTY	VACANT PLATTED LOT-500	0.22	18,100	-	18,100
23	9002538	GEORGETOWN REALTY	VACANT PLATTED LOT-500	0.22	18,100	-	18,100
24	9002263	INDIANAPOLIS MOTOR SPEEDWAY LLC	VACANT PLATTED LOT-500	2.56	64,300	-	64,300
25	9002116	GEORGETOWN REALTY COMPANY	VACANT PLATTED LOT-500	0.22	18,100	-	18,100
26	9002457	GEORGETOWN REALTY COMPANY	VACANT PLATTED LOT-500	0.22	18,100	-	18,100
27	9030166	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	17.10	588,500	178,800	767,300
28	9002697	GEORGETOWN REALTY	VACANT PLATTED LOT-500	0.22	18,100	-	18,100
29	9013923	GEORGETOWN REALTY CO	OTHER INDUSTRIAL STRUCTURES-399	44.85	1,264,300	92,800	1,357,100
30	9002477	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	9.06	368,300	42,400	410,700
31	9002272	INDIANAPOLIS MOTOR SPEEDWAY LLC	VACANT PLATTED LOT-500	1.73	62,600	-	62,600
32	9002654	GEORGETOWN REALTY COMPANY INC	VACANT PLATTED LOT-500	0.25	19,500	-	19,500
33	9002537	GEORGETOWN REALTY	RES ONE FAMILY PLATTED LOT-510	0.27	19,500	50,600	70,100
34	9005785	GEORGETOWN REALTY CO	OTHER INDUSTRIAL STRUCTURES-399	106.99	3,026,500	112,200	3,138,700
35	9002460	GEORGETOWN REALTY CO INC	VACANT PLATTED LOT-500	0.25	18,100	-	18,100
36	9013921	GEORGETOWN REALTY CO	OTHER INDUSTRIAL STRUCTURES-399	51.14	1,023,000	-	1,023,000
37	9029453	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	2.53	153,000	-	153,000
38	9044031	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	8.53	33,400	-	33,400
39	9056228	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	55.86	988,700	19,500	1,008,200
40	9047422	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	3.84	195,800	103,600	299,400
41	9029424	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	2.52	153,000	-	153,000
42	9029440	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	0.24	14,900	-	14,900
43	9033412	GEORGETOWN REALTY COMPANY	OTHER INDUSTRIAL STRUCTURES-399	3.61	213,600	-	213,600
44	9024921	GEORGETOWN REALTY COMPANY	OTHER INDUSTRIAL STRUCTURES-399	8.52	699,100	-	699,100
45	9029454	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	2.52	174,800	2,400	177,200
46	9032491	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	0.28	16,900	-	16,900
47	9029441	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	0.24	14,900	-	14,900
48	9029432	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	0.20	12,400	-	12,400
49	9029445	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	0.24	14,900	-	14,900
50	9030319	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	5.25	125,600	-	125,600
51	9029439	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	0.24	14,900	-	14,900
52	9002955	GEORGETOWN REALTY COMPANY	OTHER INDUSTRIAL STRUCTURES-399	0.86	58,500	15,600	74,100

Directory of Parcels Included in the Indiana Motorsports District Per HEA 1544

Ind #	Parcel #	Owner per Property Tax Records	Prop Class Name	Acres	Land AV	Improvement AV	Total AV
53	9029464	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	0.24	14,800	-	14,800
54	9029425	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	0.22	13,900	-	13,900
55	9027291	INDIANAPOLIS MOTOR SPEEDWAY LLC	OTHER INDUSTRIAL STRUCTURES-399	15.25	306,700	-	306,700
56	9002721	GEORGETOWN REALTY CO INC	COM MOBILE HOME PARKS-415	0.93	39,700	9,800	49,500
57	9027323	GEORGETOWN REALTY CO INC	COM MOBILE HOME PARKS-415	1.32	57,000	55,300	112,300
58	9025148	GEORGETOWN REALTY COMPANY	OTHER INDUSTRIAL STRUCTURES-399	0.14	9,200	-	9,200
59	9029446	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	0.24	14,900	-	14,900
60	9029449	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	2.15	133,700	-	133,700
61	9029433	GEORGETOWN REALTY CO INC	OTHER INDUSTRIAL STRUCTURES-399	0.20	12,400	-	12,400
62	9027318	GEORGETOWN REALTY CO INC	COM COMMUNITY SHOPPING CENTER-426	20.44	2,420,900	2,020,600	4,441,500
63	9024911	INDIANAPOLIS MOTOR SPEEDWAY LLC	VACANT PLATTED LOT-500	0.25	19,500	-	19,500
64	9002201	GEORGETOWN REALTY	VACANT PLATTED LOT-500	0.22	18,100	-	18,100
98	9003200	PENN CENTRAL CORP	U STATE ASSESS RAILROAD-841	6.10	-	-	-

NON-IMS PARCELS

65	9002720	WILCOX MGT CORP	COM MOBILE HOME PARKS-415	1.92	82,500	126,200	208,700
66	9025165	DALLARA USA HOLDING INC	IND LIGHT MFG. & ASSEMBLY-340	1.88	150,900	-	150,900
67	9025164	DALLARA USA HOLDING INC	IND LIGHT MFG. & ASSEMBLY-340	1.76	142,900	3,490,300	3,633,200
68	9031801	WILCOX MGT CORP	COM MOBILE HOME PARKS-415	0.64	28,700	-	28,700
69	9029450	SPEEDWAY POST 500 INC AMERICAN LEGION	OTHER EXEMPT-699	4.29	530,100	245,400	775,500
70	9041511	LUEBBERT, JAMES R &	COM SMALL DET RETAIL (-10000)-420	0.38	82,800	69,300	152,100
71	9041512	BISHOP, GERALD L &	COM REST-430	0.40	69,700	48,500	118,200
72	9002205	D C A INC	COM OTR RETAIL STRUCTURES-429	0.29	46,900	-	46,900
73	9002539	DUMAN, BETTY J &	RES ONE FAMILY PLATTED LOT-510	0.22	18,100	71,400	89,500
74	9002204	D C A INC	COM OTR RETAIL STRUCTURES-429	0.22	36,200	22,700	58,900
75	9002203	DUMAN, BETTY J &	RES ONE FAMILY PLATTED LOT-510	0.22	18,100	93,800	111,900
76	9002996	MILLER, LARRY K &	RES ONE FAMILY PLATTED LOT-510	0.14	19,300	52,300	71,600
77	9002621	REYNOLDS, JOHN R	RES ONE FAMILY PLATTED LOT-510	0.58	56,500	106,600	163,100
78	9025170	WOOD, WILLIAM M	RES ONE FAMILY PLATTED LOT-510	0.14	19,300	98,500	117,800
79	9002562	BUNCH, BETTE P	COM OFF BLDG 1 OR 2 STY-447	0.41	86,400	130,700	217,100
80	9043288	BERMAN, ELLEN R 1/6 &	COM SMALL DET RETAIL (-10000)-420	0.63	77,100	67,000	144,100
81	9025079	TOWN OF SPEEDWAY REDEVELOPMENT	EXEMPT - MUNICIPALITY-640	0.22	-	-	-
82	9043315	BERMAN, ELLEN R 1/6,	COM SMALL DET RETAIL (-10000)-420	0.06	-	81,800	81,800
83	9002405	BERMAN, ELLEN R 1/6 &	COM SMALL DET RETAIL (-10000)-420	2.65	511,700	-	511,700
84	9002406	ZELMAN, BERNARD L TRUSTEE	COM AUTO SERVICE STATION-452	0.63	129,400	42,100	171,500
85	9045917	SPIRIT SPE PORTFOLIO	COM FRANCHISE RESTAURANT-431	0.17	49,700	28,400	78,100
86	9050387	BERMAN, ELLEN R 1/6,	COMMERCIAL GARAGES-455	0.06	-	148,800	148,800
87	9002373	ECKERT, PAUL W AS TRUSTEE	RES TWO FAMILY PLATTED LOT-520	0.14	19,300	39,600	58,900
88	9041513	UNITED STATES AUTO CLUB INC	OTHER EXEMPT-699	0.18	23,500	567,900	591,400
89	9002317	UNITED STATES AUTO CLUB INC	OTHER EXEMPT-699	0.30	40,500	4,700	45,200
90	9048764	M & J LIMITED PARTNERSHIP	COM PARKING LOT OR STRUCTURE-456	3.76	120,100	1,600	121,700
91	9043755	BERMAN, ELLEN R 1/6,	COM SMALL DET RETAIL (-10000)-420	0.06	-	52,400	52,400
92	9002468	TOWN OF SPEEDWAY REDEVELOPMENT	EXEMPT - MUNICIPALITY-640	0.18	-	-	-
93	9002620	BUNCH, BETTE	RES ONE FAMILY PLATTED LOT-510	0.14	19,300	96,300	115,600
94	9027033	BEAUDRY, ROBERT P &	COM SMALL DET RETAIL (-10000)-420	0.70	90,300	71,200	161,500
95	9058767	HARTMAN RACING LLC	IND LIGHT MFG. & ASSEMBLY-340	2.81	175,000	1,755,400	1,930,400
96	9002482	SPEEDWAY PROPERTIES LLC	COM MOBILE HOME PARKS-415	4.51	186,600	148,200	334,800
97	9029451	ILI REALTY ASSOCIATES	COM AUTO SERVICE STATION-452	0.56	125,700	119,400	245,100
99	9002360	BRICKER, BEVERLY &	RES ONE FAMILY PLATTED LOT-510	0.29	20,900	69,600	90,500
100	9025034	HOLTSCLOW, WILLIAM THOMAS	VACANT PLATTED LOT-500	0.10	8,200	-	8,200
101	9025035	HOLTSCLOW, WILLIAM THOMAS	RES ONE FAMILY PLATTED LOT-510	0.25	19,500	72,800	92,300
102	9056740	GARDNER, JAMES A/K/A	VACANT PLATTED LOT-500	0.28	20,900	-	20,900
103	9025092	DILLER, JAMES E SR &	RES ONE FAMILY UNPLAT 0-99-511	1.35	24,900	33,100	58,000

**ANNEX II
TO
EXHIBIT A (IMPROVEMENT PLAN)**

***“Estimating the Annual Economic Contributions
of the Indianapolis Motor Speedway”***

and

Supplemental Information

Estimating the Annual Economic Contributions of the Indianapolis Motor Speedway



**Indiana University Public Policy Institute
334 N. Senate Avenue, Suite 300
Indianapolis, IN 46204**



**SCHOOL OF PUBLIC AND
ENVIRONMENTAL AFFAIRS**
INDIANA UNIVERSITY

February 2013

Estimating the Annual Economic Contributions of the Indianapolis Motor Speedway



© February 2013 IU Public Policy Institute 13-C10
334 North Senate Avenue, Suite 300
Indianapolis, Indiana 46204-1708

Estimating the Annual Economic Contributions of Indianapolis Motor Speedway

February 2013

13-C10

Author	List of Tables.....	ii
	List of Figures.....	ii
Drew Klacik	Executive Summary	3
	Introduction.....	5
	Methodology.....	5
	Estimating the Economic Contributions of IMS	7
	IMS Corporate Contributions.....	7
	Out-of-State Visitor Spending.....	9
	IndyCar Race Teams and Dallara	15
	Conclusion.....	17
	Bibliography.....	18

List of Tables

Table 1. Summary of total impacts 2012.....	4
Table 2. Employment and wages included in economic contributions of IMS corporate operations, 2012.....	9
Table 3. Employment and wages included in economic contributions of out-of-state visitor spending, 2012.....	14
Table 4. Employment and wages included in economic contributions of IndyCar race teams, 2012.....	15
Table 5. Employment and wages included in economic contributions of Dallara, 2012.....	16
Table 6. Total employment and wages included in economic contributions from IMS operations, out-of-state visitor spending, IndyCar race teams, and Dallara, 2012	17

List of Figures

Figure 1: Estimated annual economic contribution of IMS to Indiana's economy, 2012	4
Figure 2: IMS corporate average annual budget by activity, 2009-2011	8
Figure 3: Average annual economic contributions of IMS corporate operations.....	8
Figure 4: Total estimated visitor spending by racing event, 2012	11
Figure 5: Total estimated direct spending of out-of-state visitors attending the Indianapolis 500, 2012.....	11
Figure 6: Total estimated direct spending of out-of-state visitors attending the Brickyard 400, 2012	12
Figure 7: Total estimated direct spending of out-of-state visitors attending the Red Bull Indianapolis GP, 2012	13
Figure 8: Economic contributions associated with out-of-state visitor spending at IMS races, by spending category, 2012	14
Figure 9: Estimated economic contribution of IndyCar teams and Dallara facility, 2012	16
Figure 10: Total estimated economic contribution of IMS, 2012	17

Executive Summary

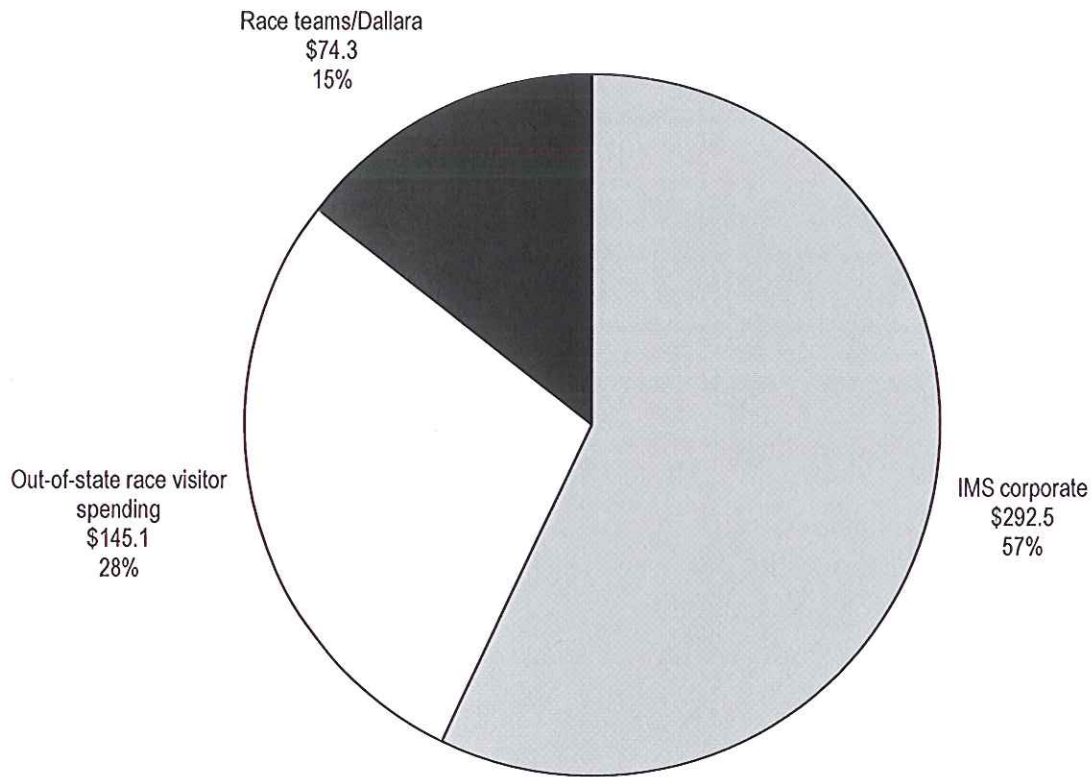
The Indianapolis Motor Speedway (IMS) engaged the Indiana University Public Policy Institute (PPI) to estimate the economic contributions, in the form of total economic activity, employment, and employee compensation, IMS makes in Indiana. IMS provided PPI with its three most recent years of revenue and spending data (2009 to 2011) and the results of a survey of the spending patterns of ticketholders.

The IMS is an internationally recognized motorsports icon. Established in 1909, it is the world's largest spectator sports facility (World Stadiums, 2013) and the epicenter of Indiana's motorsports cluster. While the spectator events are very important to Indiana's economy (estimates suggest that the three main events—Indianapolis 500, Brickyard 400, and Indianapolis GP—attract over 200,000 out-of-state visitors each year), IMS also contributes to the state's economy by serving as the catalyst for and anchor of the state's motorsports cluster.

Operations and events at IMS, including the IndyCar teams and Dallara's IndyCar assembly facility located in Indiana, are estimated to be directly responsible for 4,200 employees and nearly \$315 million of economic activity annually. When multiplier effects are considered, IMS generates over \$510 million of economic activity annually in Indiana, including approximately 6,200 direct and indirect jobs, and over \$235 million in employee compensation. The vast majority of economic contributions attributable to IMS are new to Indiana, however a small portion of the impact is attributable to revenue derived from Indiana ticket purchases and spending. The portion attributable to spending by Indiana residents may represent a substitution of entertainment spending. Figure 1 and Table 1 display the total economic contributions from IMS corporate spending, race-related out-of-state visitor spending, IndyCar race teams, and the Dallara production facility.

With 24,474 firms and 421,000 employees, Indiana's motorsports cluster, is internationally recognized as one of the three most competitively-advantaged motorsports clusters. While the motorsports cluster contains non-racing firms that supply goods and services to firms directly involved in racing, it is estimated that 2,230 firms and 23,000 employees in Indiana are directly involved in the sport of racing (Hutcheson, Lewellen, Kumar, Zhelnin, Klacik & Weisenbach, 2012). Based on its economic contribution in dollars and jobs, IMS clearly is important to the vitality of the motorsports cluster and to Indiana's economy.

Figure 1: Estimated annual economic contribution of IMS to Indiana's economy, 2012



Source: Indiana University Public Policy Institute

Table 1. Summary of total impacts, 2012

	Economic Contribution (\$ Millions)	Employment (FTE)	Employee Compensation (\$ Millions)
Direct	\$314.2	4,230	\$137.7
Indirect	\$197.7	1,990	\$64.8
Total	\$511.9	6,220	\$202.6

Source: Indiana University Public Policy Institute

Introduction

The Indianapolis Motor Speedway (IMS) engaged the Indiana University Public Policy Institute (PPI) to estimate the economic contributions—total economic activity, employment, and employee compensation—IMS makes in Indiana. IMS provided PPI with its three most recent years of revenue and spending data (2009 to 2011) and the results of a survey of the spending patterns of ticketholders.

The IMS is an internationally recognized motorsports icon. Established in 1909, it is the world's largest spectator sports facility (World Stadiums, 2013) and the epicenter of Indiana's motorsports cluster. While the spectator events are very important to Indiana's economy (estimates suggest that the three main events—Indianapolis 500, Brickyard 400, and Indianapolis GP—attract over 200,000 out-of-state visitors each year), IMS also contributes to the state's economy by serving as the catalyst for and anchor of the state's motorsports cluster.

This report addresses the direct and indirect economic contributions made by the IMS through its operations, the spending of out-of-state visitors to the three races, and the presence of the IndyCar race teams and Dallara engineering and assembly facility, which likely would not be located in Indiana but for the IMS. Total economic contributions include direct and indirect activity. Direct economic contributions represent only the employment and revenue/spending of IMS, out-of-state race visitors, IndyCar teams, and Dallara. Indirect or spin-off economic contributions represent the economic activities attributable to the spending of firms (and their employees) from whom IMS, race visitors, IndyCar teams, and Dallara purchase goods and services. Within direct and indirect economic benefit, the analysis also includes estimates of employment and employee compensation.

Methodology

Input/output modeling is the most common method for estimating the economic contributions of a corporation. Input/output modeling estimates the indirect and induced benefits (or more commonly known as spin-off benefits) attributable to the initial or direct expenditures related to the construction and operational spending of a company or industry. PPI uses the 2012 IMPLAN input/output model to estimate these additional benefits. In cases when direct revenue was not available, PPI also used the model to estimate direct economic benefits.

Typically, an input/output model is based on average spending patterns for a specific industry, using Bureau of Labor Statistics data regarding the business to business spending patterns of the firms within the industry, as well as employment patterns and wages. For example, there are four major automotive manufacturing facilities in Indiana (GM Truck and Bus, Subaru, Toyota, and Honda). Using the averages for the automotive manufacturing industry, an input/output model could then be used to estimate how a fifth automotive company located in Indiana would contribute to the state's economy.

As the world's largest spectator sports facility, IMS has few comparable peers. This fact makes estimating the economic contributions, especially the indirect or spin-off contributions, particularly challenging. While there is a race track operations industry category in IMPLAN, the modeling for that category is based on averages of race tracks in Indiana. The average includes facilities such as Lucas Oil Raceway (the second largest oval race track in the state, with only approximately 28,000 permanent seats or about 10 percent of IMS seating capacity), and much

smaller facilities such as the Anderson Speedway, Bunker Hill Dragstrip, Indianapolis Speedrome, and many others, including the state's two horse racing facilities. Using the average business to business, employee, and visitor spending patterns of these facilities to estimate the economic contributions of IMS would grossly misrepresent its economic contributions.

PPI's goal when estimating economic contributions of firms is to be consistent in applying input/output modeling methodology, while providing estimates that are neither overly conservative nor overly aggressive. In the unique case of IMS, we determined that using a single industry specific multiplier for race tracks would not be the most consistent and realistic method to estimate its economic contributions. Instead in order to more accurately estimate the economic contributions of IMS, PPI staff decided to break down the economic contributions of IMS into more precise input/output modeling categories.

Three distinct analyses were conducted to create the estimate of economic contributions: IMS operations (running the facility,) out-of-state visitor spending, and related operations specifically the IndyCar teams and Dallara facility located in Indiana because of IMS). For each of these analyses, a number of specific sub-analyses were conducted. For example, the IMS operations analysis was broken down into seven categories: construction and maintenance, concessions, merchandize, golf course, IMS productions (TV and radio), IndyCar league management, and IMS operations. The spending in each of these categories was used as an input in the input/output IMPLAN model. In each of the analyses following the IMS operations analysis deductions were made as appropriate to avoid double counting direct and indirect spending.

The estimates of spending associated with out-of-state visitors involved a number of carefully designed steps. The first task was to estimate the number of out-of-state visitors associated with each race. While most studies might base this estimate on zip code of those who purchase tickets, PPI researchers knew from experience that there are out-of-state visitors using tickets purchased by in state residents and in state residents using tickets purchased by out-of-state race patrons. In order to more accurately estimate the number of out-of-state visitors and their spending, IMS engaged their partner, TurnKey, to survey Indiana and out-of-state ticket purchasers (determination based on the ZIP code to which the tickets were mailed) for each race regarding the number of out-of-state residents using tickets purchased by the respondent. The survey asked both in- and out-of-state ticket holders to each race to identify how many of the tickets they purchased were used by individuals living outside Indiana. Based on these survey responses, PPI estimated the number of out-of-state visitors. For example, for the Indianapolis 500 approximately 22 percent of all tickets purchased by Indiana residents were used by out-of-state visitors. Approximately 86 percent of all tickets purchased by out-of-state fans were used by out-of-state residents. Turnkey also surveyed respondents about what sort of lodging accommodations the out-of-town visitors used (hotel, RV, stay with friends/family, and other), how long the out-of-state visitors remained in Indiana, and out-of-state visitor spending during their race visit. From these data, PPI calculated the unique spending patterns of patrons for each of the three races (Indianapolis 500 visitors stayed the longest and spent the most) using the survey data, and ran the input output model for five expenditure patterns (food and beverage, transportation, retail goods, lodging, entertainment) for each race. The *other* category was estimated using an average of the multipliers from four of the categories.

The analysis of economic contributions from the operations of the IndyCar and IndyLights teams located in Indianapolis and the Dallara IndyCar assembly facility are included because it is reasonable to assume that they would not be located here but for the presence of IMS and IndyCar. Estimates of their economic activity were based on employment data provided by the

Indiana Motorsports Association. While it may be reasonable to assume that a large number of suppliers of engines, car parts, and merchandise would not be located in Indiana but for IMS, only the IndyCar teams and Dallara are used as inputs in this analysis.

Estimating the Economic Contributions of IMS

While it is common to think only of the three races when considering the economic contributions related to the speedway, in reality, IMS is a major corporation involved in managing the world's largest sporting facility, running a racing league, managing a media production company, and owning and operating a golf course. Because of IMS, the majority of IndyCar teams and the Dallara IndyCar assembly facility are located in Indiana. As a result, PPI conducted three distinct analyses to create the estimate of economic contributions: IMS corporate (running the facility, IndyCar league et al.), race related out-of-state visitor spending, and related operations specifically the IndyCar teams and Dallara facility located in Indiana because of IMS. While each of these elements are treated separately, in aggregate, they make up the total economic contribution of IMS to Indiana's economy.

IMS Corporate Contributions

The first generator of economic contributions is IMS corporate operations. On average over the past three years, the annual operating budget for IMS is \$171 million. This represents direct corporate economic contribution.

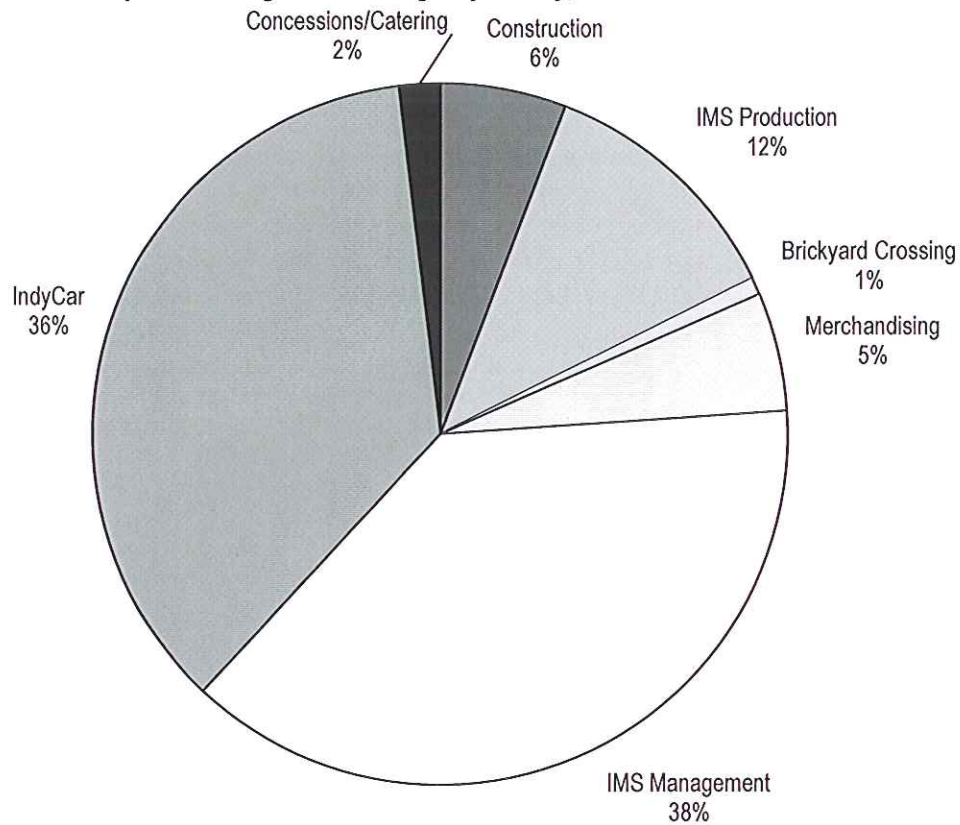
As mentioned above, IMS provided a breakdown of revenues/spending representing the range of corporate activities for 2009-2011. IMS corporate activities comprise all the tasks required to maintain the facility and host the three races, including:

- IMS management (facility and race management),
- Facility maintenance (including new construction and rehab),
- IMS productions (an in-house media group),
- Merchandise and concessions sales,
- The Brickyard Crossing Golf Course,
- Management of the IndyCar series, and
- The IMS Hall of Fame Museum.

Figure 2 shows the average proportion of total expenditures related to each activity.

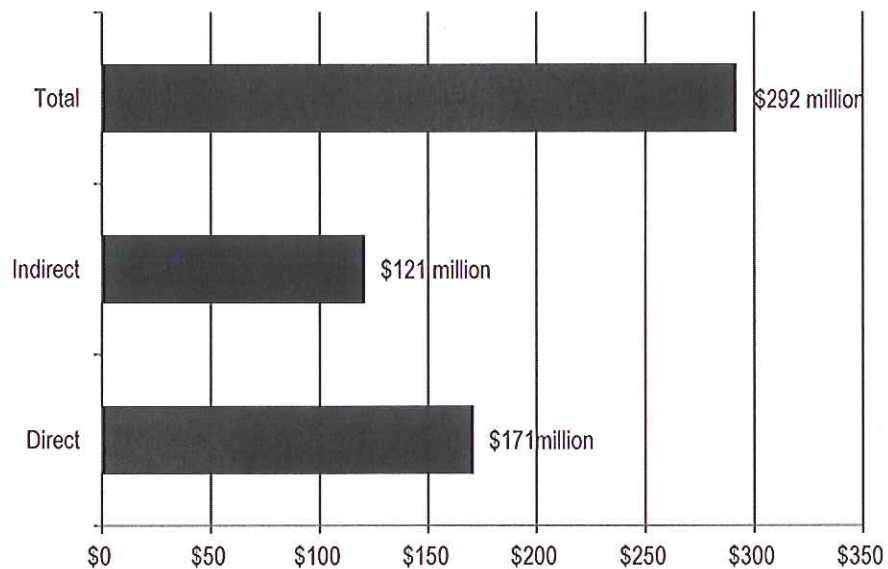
The direct spending in each of the seven corporate activities was used in the input/output model IMPLAN to estimate indirect or spin-off benefits. As shown in Figure 3, the \$171 million of IMS direct economic activity serves as the impetus for more than \$120 million of indirect economic activity within Indiana, thus contributing in total more than \$290 million of economic activity to the state's economy annually.

Figure 2: IMS corporate average annual budget by activity, 2009-2011



Source: Indianapolis Motor Speedway

Figure 3: Average annual economic contributions of IMS corporate operations



Source: Indiana University Public Policy Institute

The \$292 million of economic activity related to IMS corporate activities includes wages for more than 1,500 direct and 1,100 indirect jobs (2,688 total; see Table 2), and over \$118 million in employee compensation. The average direct employee compensation is over \$51,000 annually and the total average compensation is over \$43,000 annually.¹ Typically the average total compensation is lower than the direct compensation because of the larger share of service and support jobs in the indirect or spinoff effects.

Table 2. Employment and wages included in economic contributions of IMS corporate operations, 2012

	Economic Contribution (\$ Millions)	Employment (FTE)	Employee Compensation (\$ Millions)
Direct	\$171.0	1,570	\$80.0
Indirect	\$121.0	1,120	\$38.0
Total	\$292.0	2,690	\$118.0

Source: Indiana University Public Policy Institute

Out-of-State Visitor Spending

The second generator of economic contributions is the spending by out-of-state visitors to the races. The IMS is a national and international draw, which attracts approximately 200,000 out-of-state visitors to the three races, according to the survey of IMS ticketholders implemented by IMS's partner Turnkey. IMS also attracts additional out-of-state visitors for tire and chassis test sessions, out-of-state business-related visitors to both IMS and the IndyCar team shops, and tourist visits to the IMS facility and museum. These non-race related visitors are not included in the visitor spending analysis. The following analysis is based solely on the spending of out-of-state visitors.²

The 2012 Turnkey survey data were used to estimate average spending per out-of-state visitor for the three races in each of the following categories:

- Rental car
- Public transit/cab
- Parking
- Food and beverage
- Gasoline
- Shopping
- Entertainment
- Museums and cultural events
- Spas
- Casinos and gaming
- Other

These averages for each race were applied to the total number of out-of-state visitors to establish the direct economic contributions from these categories of spending. The survey did not ask about spending on lodging, but rather about whether a majority of the persons using the

¹In 2011, the average earning per job in central Indiana was \$49,400.

http://www.stats.indiana.edu/profiles/profiles.asp?scope_choice=b&county_changer2=Rnocenso:C

² Spending by Indiana race patrons is not included. If these residents choose not to attend an IMS event it is likely they would attend other entertainment-related events (ranging from dining out a few extra times a year to attending a Colts, Pacers, Purdue or IU game) within Indiana.

respondent's tickets purchased market-rate lodging. These data also were used to establish an average and the average was applied to the number of out-of-state visitors. The product was multiplied by the most recent room cost provided by the Indianapolis Convention and Visitors Association multiplied by the average number of room nights reported by survey respondents assuming double occupancy. These results were added to the previous direct economic contributions.

Similar to the previous analysis of IMS operations, an input/output IMPLAN model was used to estimate indirect spending. Prior to running the model, concessions and merchandise sales at IMS were deducted from these estimates of direct spending by out-of-state visitors to avoid double counting the same spending in the IMS operations data. This adjustment is imperfect because some merchandise sales occurs online and not all merchandise and concessions sales at IMS are attributable to out-of-state visitors. This adjustment reduces out-of-state direct visitor spending from nearly \$105 million to \$92.3 million. The adjusted spending was used as the input into the model.

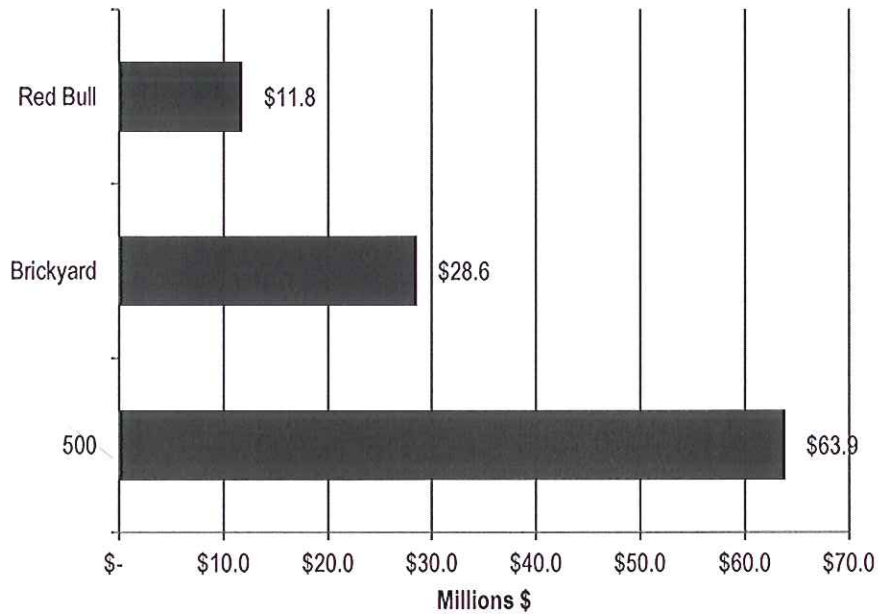
The direct economic contributions by category derived from the Turnkey survey were aggregated into six categories for input into the input/output IMPLAN model. The rental car, public transit, cab, parking, and gasoline responses were combined into a transportation category. Entertainment, museums, cultural events, spas, and casino and gaming expenditures were combined into an entertainment category. The other spending categories remained as identified in the survey (lodging, food and drink, shopping and gifts, and other).

The visitor survey data did not point to an appropriate input category for the model for *other* spending (approximately \$4.5 million across the three races). The decision was made to estimate the indirect and spinoff effect of spending on *other* based on the average multiplier rate across the four specified input/output spending categories (food and drink, transportation and parking, shopping and gifts, and entertainment).

Direct out-of-state visitor spending by race

Based on the reported spending patterns of those who purchased tickets for the Indianapolis 500, the Brickyard 400, and Red Bull Indianapolis GP, out-of-state visitors spent in excess of \$104 million. Approximately 60 percent of all race-related out-of-state visitor spending is attributable to the Indianapolis 500. Figure 4 shows the breakdown of direct visitor spending for each of the three races.

Figure 4: Total estimated visitor spending by racing event, 2012



Source: Indiana University Public Policy Institute

Direct out-of-state visitor spending for the Indianapolis 500

Based on the reported spending patterns of those who purchased tickets for the Indianapolis 500, the out-of-state Indianapolis 500 visitors spent slightly more than \$600 on average per visit. The average visit was 2.3 nights. As shown in Figure 5, food and drink was the largest single expenditure category with over \$22 million of total expenditures.

Figure 5: Total estimated direct spending of out-of-state visitors attending the Indianapolis 500, 2012

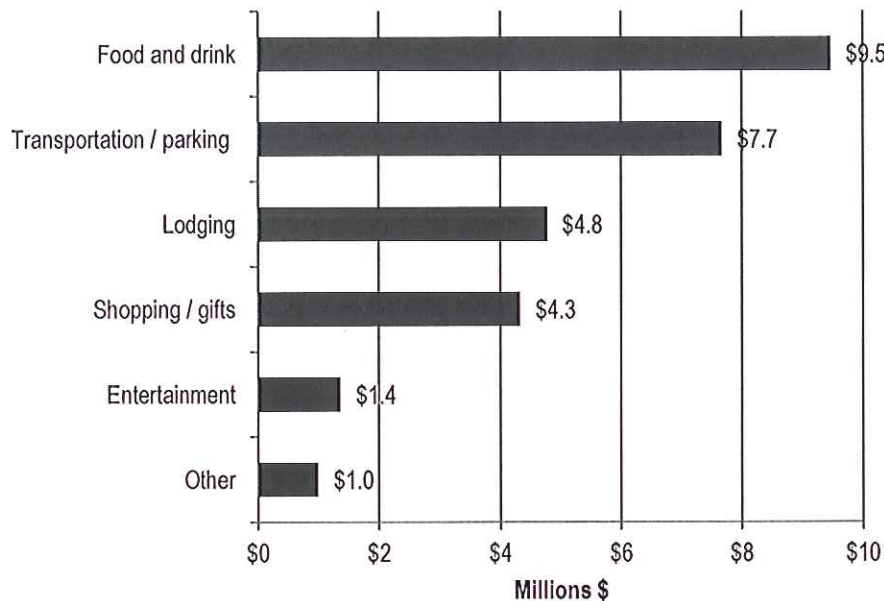


Source: Indiana University Public Policy Institute

Direct out-of-state visitor spending at the Brickyard 400

Extrapolated from the reported spending patterns of those who purchased tickets for the Brickyard 400, the average out-of-state race visitor spent slightly under \$500 per visit. The average visit was approximately two nights. As displayed in Figure 6, food and drink was the largest single expenditure category with \$9.5 million of total expenditures.

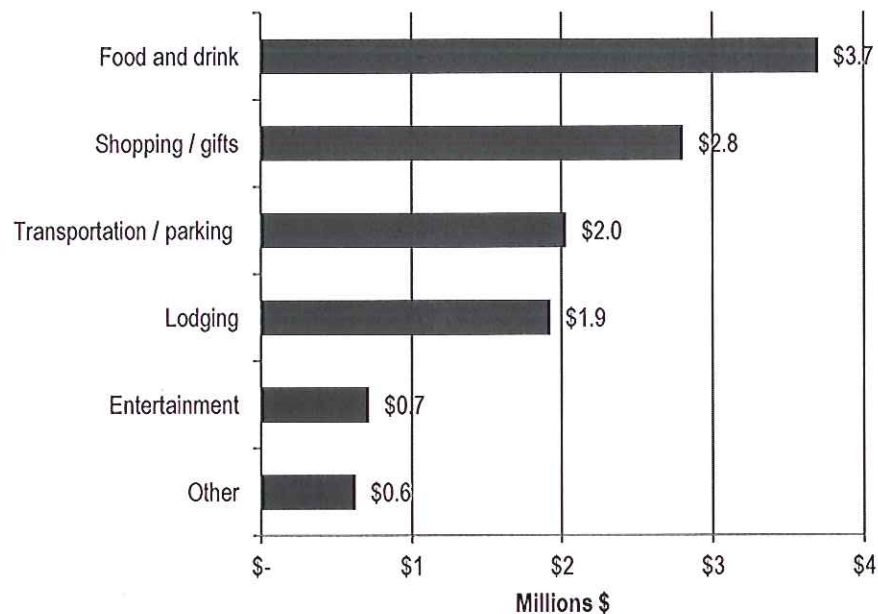
Figure 6: Total estimated direct spending of out-of-state visitors attending the Brickyard 400, 2012



Direct out-of state visitor spending at the Red Bull Indianapolis GP

Based on the reported spending patterns of those who purchased tickets for the Red Bull Indianapolis GP, the average race visitor spent nearly \$750 per visit. The average visit lasted nearly three nights. While this event reported the lowest number of out-of-state visitors, those who came stayed longer and spent more per individual than fans of either the Indianapolis 500 or the Brickyard 400. As displayed in Figure 7, food and drink was the largest single expenditure category with nearly \$3.7 million of total expenditures.

Figure 7: Total estimated direct spending of out-of-state visitors attending the Red Bull Indianapolis GP, 2012

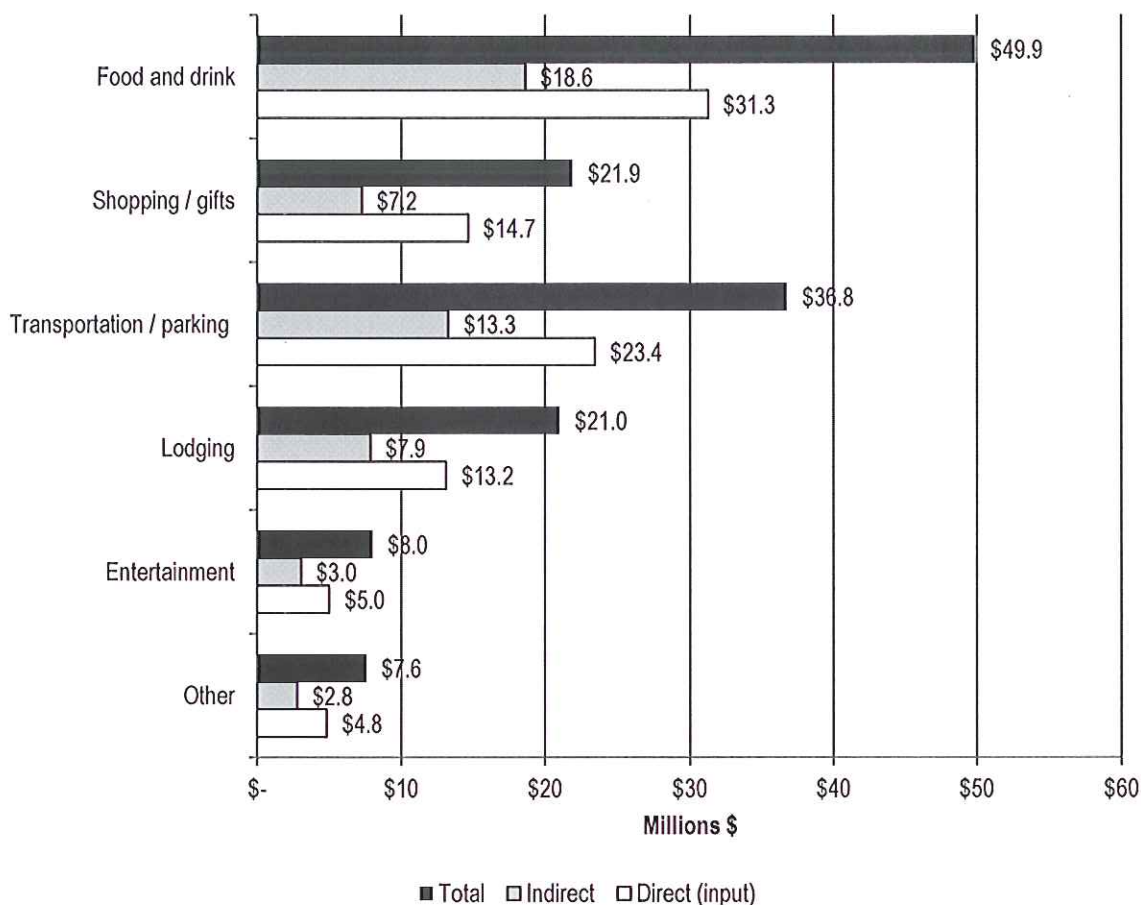


Source: Indiana University Public Policy Institute

Total and indirect economic activity associated with spending by out-of-state race visitors

Figure 8 shows the total direct out-of-state visitor spending and indirect economic contributions of out-of-state visitor spending generated by the input/output IMPLAN model. Based on a total direct spending impact of \$92.3 million of out-of-state visitor spending (estimated spending from visitor survey minus concessions and merchandise sales), an additional \$52.8 million of indirect economic activity occurs within Indiana. Thus, the total annual economic contribution of visitor spending is over \$145.1 million.

Figure 8: Economic contributions associated with out-of-state visitor spending at IMS races, by spending category, 2012



Source: Indiana University Public Policy Institute

The \$145.1 million out-of-state visitor related economic activity includes over 2,164 direct and 610 indirect jobs (2,774 total; see Table 3), and nearly \$53 million of employee compensation. The average direct employee compensation is nearly \$16,000 and the total average compensation is nearly \$19,000.¹ The jobs associated with visitor spending are primarily within the service sector and thus have lower average employee compensation than those associated with IMS operations. Additionally, while typically the jobs associated with direct spending have higher wages than total jobs, the direct jobs in this analysis are primarily services, while indirect jobs include a higher share of management and production positions.

Table 3. Employment and wages included in economic contributions of out-of-state visitor spending, 2012

	Economic Contribution (\$ Millions)	Employment (FTE)	Employee Compensation (\$ Millions)
Direct	\$92.3	2,160	\$34.4
Indirect	\$52.8	610	\$18.2
Total	\$145.1	2,770	\$52.7

Source: Indiana University Public Policy Institute

IndyCar Race Teams and Dallara

The third generator of economic contributions is the spending by race teams and Dallara. Most IndyCar race teams are located in Indiana because of the presence of IMS. In fact, only four established IndyCar teams—Penske, Dragon, Coyne, and Foyt—are not located near IMS. In addition to the teams, Dallara recently located its IndyCar assembly facility in the town of Speedway directly south of IMS.

Economic contribution of IndyCar race teams

Based on data provided by the Indianapolis Motorsports Association, there are 14 IndyCar and IndyLights race teams located in Central Indiana with approximately 460 (FTE) employees. The employees range from highly paid drivers, to engineers and highly skilled mechanics, to janitorial staff. The estimated annual operating budget of these teams is approximately \$60 million, based conservatively on 20 race cars and estimates of \$3 to \$8 million per car (Indy Idea. 2009; Weisenbach, 2013; www.crash.net, 2012) from a variety of sources covering motorsports. IMS/IndyCar contributes approximately \$20 million annually to operations of the teams' budgets and the spending of IndyCar teams with Dallara. When deducted from the total budget of these teams to avoid double counting expenditures already documented under IMS operations, the net direct economic contribution is \$40 million.

To estimate indirect spending for race teams, an input/output IMPLAN model was utilized. Because the model's professional sports franchise input category does not adequately reflect the nature of IndyCar race teams, indirect spending was derived from the averaged output of two input categories (professional sports franchise and engineering firm).

The total economic contribution of IndyCar teams to the state's economy exceeds \$54 million, including \$40 million direct and \$14.3 million indirect contributions. This economic activity includes 660 jobs and over \$26.5 million in employee compensation (see Table 4).

Table 4. Employment and wages included in economic contributions of IndyCar race teams, 2012

	Economic Contribution (\$ Millions)	Employment (FTE)	Employee Compensation (\$ Millions)
Direct	\$40.0	460	\$20.1
Indirect	\$14.3	200	\$6.4
Total	\$54.3	660	\$26.5

Source: Indiana University Public Policy Institute

Economic contribution of Dallara

According to the Indiana Motorsports Association, the Dallara facility currently employs about 40 individuals. PPI used the IMPLAN input category of automotive body assembly to estimate the direct and indirect contributions of Dallara operations to Indiana's economy. The estimate for the total annual economic contribution is nearly \$20 million, including \$11.2 million direct and \$8.7 indirect contributions. This activity includes 100 jobs and over \$5.4 million in employee compensation (see Table 4).

Table 5. Employment and wages included in economic contributions of Dallara, 2012

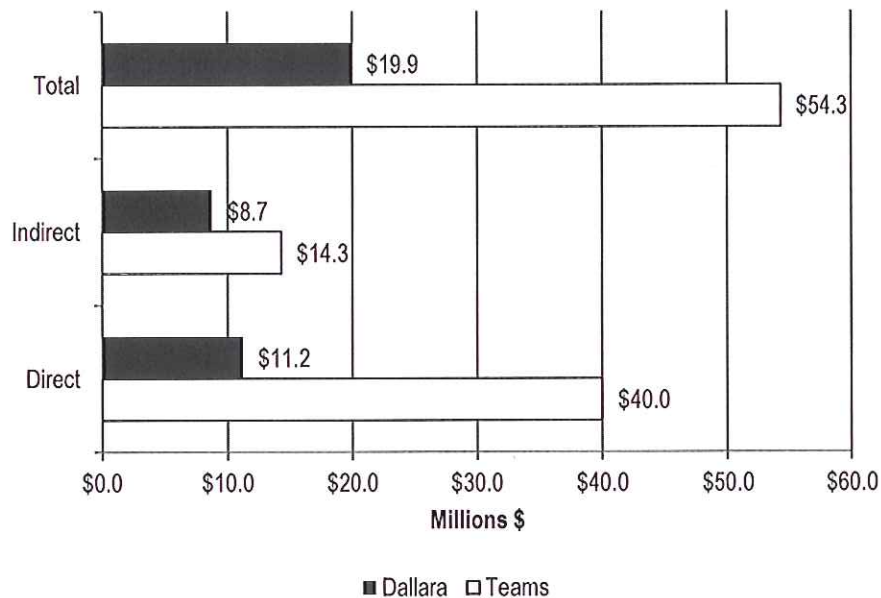
	Economic Contribution (\$ Millions)	Employment (FTE)	Employee Compensation (\$ Millions)
Direct	\$11.2	40	\$3.2
Indirect	\$8.7	60	\$2.2
Total	\$19.9	100	\$5.4

Source: Indiana University Public Policy Institute

Economic contribution of IndyCar race teams and Dallara

Together, the economic contributions of these two elements add \$74.3 million to the Indiana economy annually.

Figure 9: Estimated economic contribution of IndyCar teams and Dallara facility, 2012

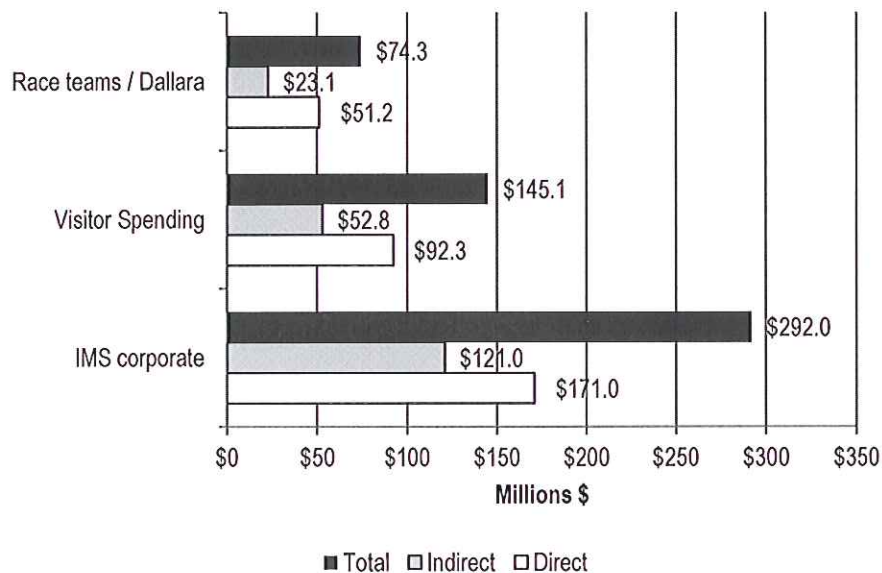


Source: Indiana University Public Policy Institute

Conclusion

In summary, IMS generates approximately \$314.5 million per year in direct economic contributions on an annual basis through IMS corporate activities, out-of-state visitor spending associated with the three races, and the operations of IndyCar race teams and the Dallara facility. When the indirect (spinoff) impacts are estimated via the use of IMPLAN input/output modeling, the total economic contribution exceeds \$511.4 million annually (see Figure 10). These economic contributions include 4,200 direct jobs, and 6,200 total jobs from both direct and indirect effects (see Table 6). These jobs translate into more than \$178 million in direct wages and \$235 million of total employee compensation. This suggests that the direct economic activity (as measured by direct jobs) attributable to IMS comprises nearly 20 percent of all employment at racing industries within Indiana, while serving as both a catalyst of and anchor for the 421,000 thousand jobs in the state's motorsports cluster.

Figure 10: Total estimated economic contribution of IMS, 2012



Source: Indiana University Public Policy Institute

Table 6. Total employment and wages included in economic contributions from IMS operations, out-of-state visitor spending, IndyCar race teams, and Dallara, 2012

	Economic Contribution (\$ Millions)	Employment (FTE)	Employee Compensation (\$ Millions)
Direct	\$314.5	4,230	\$178.0
Indirect	\$196.8	1,990	\$47.0
Total	\$511.3	6,220	\$225.0

Source: Indiana University Public Policy Institute

Bibliography

- Hutcheson, S., Lewellen, L., Kumar, I., Zhalnin, A., Klacik, D., & Weisenbach, T. (2012). *Race to the future: The statewide impact of motorsports in Indiana*. West Lafayette, Indiana: Purdue Center for Regional Development.
- Indiana Motorsports Association. (December 2012). *Membership roster*. Indianapolis, Indiana.
- Indianapolis Motor Speedway. (2012). *Ticket Sales Data*. Speedway, Indiana.
- Indianapolis Motor Speedway. (2012). *Corporate Annual Operating Budget: 2009-2011*. Speedway, Indiana.
- Indy Idea. (2009, August 10). IndyCar Price and Market Value. Message posted to <http://theindyidea.blogspot.com/2009/08/indycar-price-and-market-value.html>
- Turnkey Sports and Entertainment. (January 2013). *Indianapolis Motor Speedway Customer Survey – 2012 Races*. Haddonfield, New Jersey.
- Weisenbach, Tom. (2013, February 4). Personal interview.
- World Stadiums. (2013). "100,000+ Stadiums". Downloaded from www.worldstadiums.com on February 10, 2013.
- www.crash.net. (2012, February 11). IndyCar: Funds share-out sees MSR team at risk Retrieved from http://www.crash.net/indycar/news/176693/1/funds_share-out_sees_msr_team_at_risk.html

About the IU Public Policy Institute

The IU Public Policy Institute is a collaborative, multidisciplinary research institute within the Indiana University School of Public and Environmental Affairs. (SPEA) The Institute serves as an umbrella organization for research centers affiliated with SPEA, including the Center for Urban Policy and the Environment and the Center for Criminal Justice Research. The Institute also supports the Indiana Advisory Commission on Intergovernmental Relations (IACIR).



PolicyAnalytics, LLC

Memorandum

To: Mark D. Miles, CEO
Hulman and Company

Jeffery G. Belskus, President and CFO
Hulman and Company

Douglas Boles, President
Indianapolis Motor Speedway, LLC

From: William J. Sheldrake, President
Policy Analytics, LLC

Re: Economic Benefit and Strengthening of the State's Tax Base Provided for in HEA
1544

Date: November 22, 2013

House Enrolled Act 1544, as passed, provides a mechanism to allow the Indianapolis Motor Speedway [the "IMS"] to effectively access the capital markets to make transformative investments in its facility. These investments will improve the competitive attractiveness of the IMS' events and result in increased attendance from Indiana patrons, race fans across the U.S., and around the world.

The baseline estimate for the IMS' impact on Indiana's economy is provided in "Estimating the Annual Economic Contributions of the Indianapolis Motor Speedway."¹ The changes resulting from the HEA 1544 proposal within this memorandum are calculated based on the Indiana University Public Policy Institute study as its starting point. Additionally, a report published by the Purdue Center for Regional Development in 2012, "Race to the Future: The Statewide Impact of Motorsports in Indiana"² detailed the breadth of the motorsports industry in the State.

¹ *Estimating the Annual Economic Contributions of the Indianapolis Motor Speedway*, Indiana University Public Policy Institute, February 2013.

² *Race to the Future: The Statewide Impact of Motorsports in Indiana*, Purdue Center for Regional Development, September 2012.

The IUPPI study estimated that the IMS contributed \$511.9 million to the Indiana economy in CY 2012, [current dollars]. The impacts occur in three areas:

- 1) IMS corporate operations (which include the racing events)
- 2) Out-of-state visitor spending (which is driven by the racing events)
- 3) IndyCar race teams and their suppliers, (example is Dallara)

The IUPPI study reports economic impacts across three indicators: economic contribution, employment, and employee compensation. Economic contribution, or output, represents the total value of industry production. Employee compensation is the total cost of an employee to the employer. Employee compensation consists of wages and salary and non-cash benefits, but does not include dividends or proprietor's income. Employment in the IUPPI study represents full time equivalent positions in a given year.

The economic impacts are categorized as direct and indirect impacts. Direct impacts are a series of production changes or expenditures made by producers or consumers as a result of an economic activity. Direct impacts accrue from the buying and selling of finished goods and services. Indirect impacts stem from industry-to-industry, or intermediate, purchases resulting from a change in demand. Indirect impacts are sometimes referred to as supply chain impacts. A third type of impact, induced impact, is often measured in economic impact analysis, but is not measured in the IUPPI analysis. Induced impact is the effect of the increased household spending resulting from labor income generated by the direct and indirect impacts. By omitting the induced impact, total economic impact is purposefully understated in this analysis.

The economic impacts derived in the IUPPI analysis directly relate to the State of Indiana's tax base for the State's two largest sources of revenue, the Indiana Income Tax and Indiana Sales Tax. Employee compensation, proprietor's income and corporate income are all measures of income that comprise the tax base for the Indiana Income Tax. The Indiana Sales Tax is applied to the retail price of taxable sales. Sales tax impact can be calculated using the portion of IMS' economic contribution that is sales tax eligible.

Both direct and indirect effects contribute to the fiscal impact of IMS options. Using the economic impacts derived by IUPPI to estimate changes to the income and sales tax base allows for the full fiscal impact of IMS operations to be analyzed.

Foundational Assumptions and Impacts

The IMS is an Indiana corporation with an international reach and reputation in the motorsports arena. The impact of the facility improvements made possible by the State of Indiana's investment – implemented through the HEA 1544 mechanisms – is most reliably estimated by the IMS management in its projections for the period 2013 through 2018. After the legislation passed in early 2013, the IMS developed a new strategic plan which incorporates the capital infusion from the state and, combined with additional financial and operational changes, projects a growth path for the next 5 years. These IMS projections, certain other economic assumptions and the results of those planned actions applied to the IMS' current economic footprint are specified below.

- 1) The increased attractiveness of the Speedway facility, additional events offered [the Grand Prix of Indianapolis], and the new amenities made available at those events will produce a very significant increase in annual attendance projected to be in place by 2018.
- 2) Increases in attendance, increased sponsorship opportunities and improved marketing will result in added “top line revenue” which will increase the profitability of the IMS and its events. By 2018, IMS operations and revenues will have exhibited substantial growth in conformity with the growth in attendance.
- 3) These changes, increased attendance and profitability, which impact the IMS will further impact and strengthen the Indiana economy within the important motorsports cluster, an Indiana economic sector estimated to encompass more than 24,000 firms, employing 421,000 individuals.³
- 4) Increases in attendance at IMS events will grow Indiana’s tourism economy and the spending and sales tax revenues it produces. Tourism or visitor spending [only from visitors from outside the State] was estimated in the IUPPI study to produce an economic contribution of more than \$145 million in 2012. By 2018, based on the IMS’ projections, it is estimated that visitor spending will grow in economic impact to \$236.6 million in an annual contribution to the State economy.
- 5) The growth in the IMS’ operations and in the motorsports sector generally will produce additional individual and corporate income tax revenue for Indiana. The increases in both revenue and profitability are expected to increase taxable income for both employees and contractors within the motorsports sector. By 2018, the IMS activities related income tax base is projected to increase by 47% from its pre-investment levels.
- 6) To estimate the growth in the income and sales tax bases, certain economic assumptions were employed. An annual inflation rate of 2.25% was applied to retail sales prices over the 20 year period. Incomes subject to tax were assumed to grow at 2% per year over the 20 years.

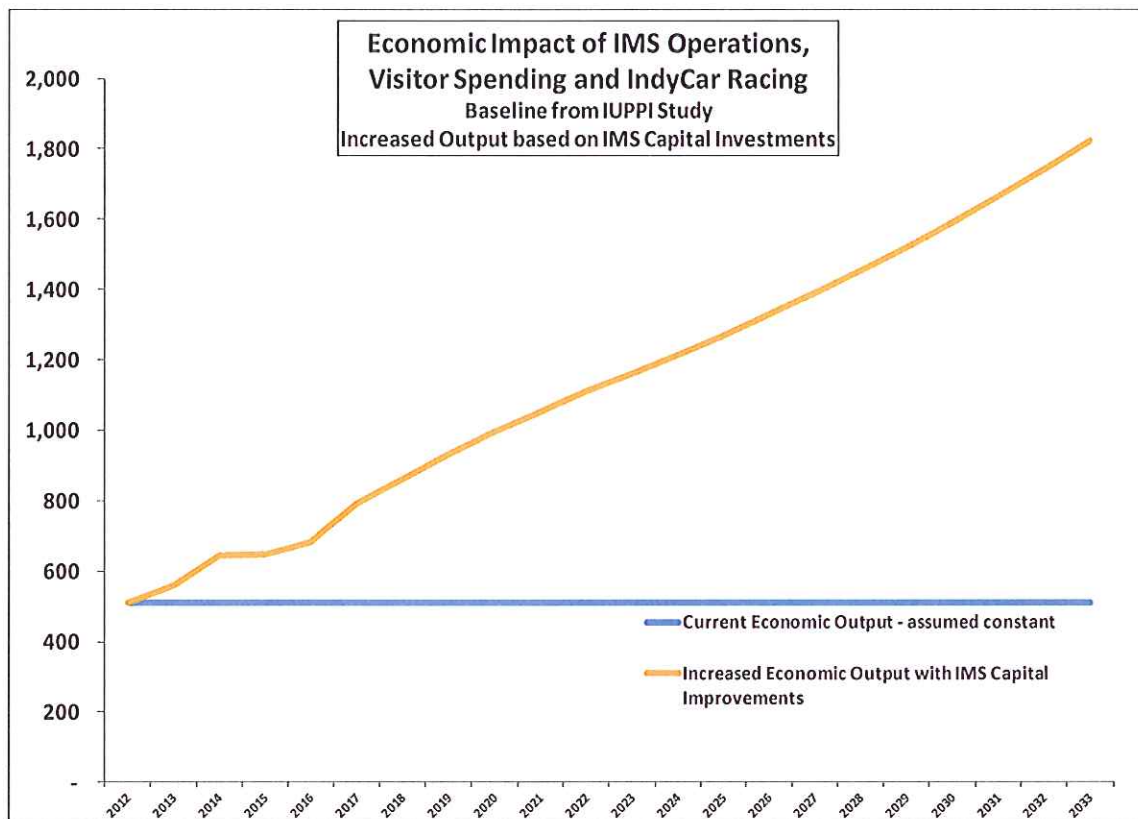
The Result: A Growing Motorsports Sector

House Enrolled Act 1544 provided for a capital infusion for the Indianapolis Motor Speedway, but also advanced the objective of aiding and fostering economic development within the larger motorsports industry across the State. The Indianapolis Motor Speedway is at the heart of the “core racing industry,” defined as those “firms directly involved in the

³ *Race to the Future*, p 4.

sport of racing.”⁴ However, Indiana is home to a vibrant motorsports cluster, which is comprised of both the core racing industry, and the businesses that connect to it through supplier and research interactions.

The economic impact shown in modeling these outcomes from the State’s investment in the IMS extends throughout this cluster and reaches into every community in the State. The longer term results of the State’s investment in this important economic sector are predictably positive. The IMS’ economic contribution to the State grows by 240% over the 20 year life of the State’s investment, with income and sales tax revenues responding proportionally.



Conclusion

House Enrolled Act 1544’s proposal to provide a capital infusion to the IMS in order to allow for competitive improvements and capital investments will provide a positive and significant return both for the State of Indiana’s treasury and for the State’s overall economy and its citizens.

⁴ *Race to the Future*, p 7.



Race to the Future:
The Statewide Impact
of
Motorsports in Indiana

September 2012

Project Staff

Purdue Center for Regional Development

Scott Hutcheson, Principal Investigator

Lee Lewellen, Project Manager

Indraneel Kumar, Data & Analysis Lead

Andriy V Zhalnin, Data & Analysis Support

Indiana University - Purdue University, Indianapolis

Drew Klacik, Lead Author

Indiana Motorsports Association

Tom Weisenbach, Lead Consultant and Advisor

Report provided by:

Purdue Center for Regional Development

203 Martin Jischke Drive - West Lafayette, IN 47907-2057

765-494-7273 Scott Hutcheson: hutcheson@purdue.edu

Acknowledgements

This study was funded by the U.S. Department of Commerce, Economic Development Administration and we are appreciative of their generous support.

These individuals served on the steering group for this project or provided counsel and direction during the implementation of this project:

Jeb Conrad – Greater Kokomo Economic Development Alliance

Matt Conrad – Conexus

Bill Dory – Greencastle/Putnam County Development Corporation

Danny Ernstes – Irvington Innovation Zone

Bob Grewe - New Castle/Henry County Economic Development Corporation

Scott Harris – Speedway Redevelopment Commission

Rollie Helmling – Indiana Economic Development Corporation

Kevin Kelly – Jasper County Economic Development Corporation

Mike Koyak – American Structurepoint, Inc.

Barbara Lawrence – Town of Speedway

Christine Nolan – Purdue Center for Regional Development

John Sampson, Matt Menze & Matt Rowan – Northeast Indiana Regional Partnership

John Stafford – Community Research Institute, Fort Wayne

David Terrell & Geoff Schomacker – Indiana Office of Community and Rural Affairs

Dave Tucker & Doug Bowman – Vincennes University

Danny White – Purdue University

Steven Witt – Terre Haute Economic Development Corporation

Executive Summary

Indiana and the Central Indiana region in particular, are known as the 'Racing Capital of the World.' Traditionally, this designation exists due the presence of the Indianapolis Motor Speedway and the annual running of the Indianapolis 500.

In preparing this report for the Motorsports and Vehicle Production Network project, we learned that motorsports touches nearly every corner of Indiana and is indirectly responsible for over 421,000 jobs while the cluster directly employs over 23,000 individuals in the state and pays an average wage of nearly \$63,000, exceeding the average state wage by over \$13,000.

One challenge that project staff faced is that there was no pre-existing definition of a 'motorsports cluster.' To address this, a compilation of company information was compiled from databases supplied by Conexus and the Indiana Motorsports Association. 172 unique 6-digit NAICS codes were obtained and the most frequent NAICS codes were processed through an input-output table for Indiana. From this we were able to identify significant value and supply chain linkages. Motorsports related patents were studied to identify their NAICS codes; available literature on motorsports was studied; and input from IMA members was received. This list was refined to 120 6-digit NAICS codes to create a definition for the motorsports cluster. A further refinement based on survey input became the definition for the core motorsports industries.

From this process, we were able to document the extended industry supply chain that includes vehicle production facilities and other suppliers as well as a smaller group of companies that are more exclusively aligned with motorsports.

Indiana is one of the top three locations in the world where the motorsports industry is concentrated. But, unlike England and North Carolina, the other two motorsports capitols, Indiana's motorsports companies are linked to other industries such as defense and aerospace, passenger vehicle manufacturing, and orthopedics. So, while there is a 'core cluster' of motorsports firms that is very directly engaged in motorsports, the industry cluster is broader because it includes firms that supply to or buy from the industry, but aren't exclusively motorsports.

Motorsports in Indiana also helps to spur innovation. Inventions and innovations in the racing industry are often transferred to other industries to solve problems. Race helmet design, for example, is helping to produce football helmets that may minimize concussions. But, a major challenge facing efforts to transfer technology from motorsports to other industries is a relative lack of intellectual property protection: innovation occurs so fast within motorsports that there isn't time to seek patent protection before the next variation is designed.

Another critical aspect of motorsports companies in Indiana is that their footprint extends beyond the state. Racing teams domiciled in Indiana travel all over the country for races, bringing dollars back. And companies that are involved in supplying the motorsports cluster are also sending their wares around the globe with customers in over twenty countries. It is also the case that spectators come from all over the globe to witness race events in Indiana: not just events at the Indianapolis Motor Speedway, but at venues all around the state.

Motorsports touches 91 of Indiana's 92 counties in some way or another. Beyond racetracks, there are race teams, fabricators, manufacturers, research and development firms, welding companies, suppliers, marketing and public relations firms, and service providers who compose the whole of the motorsports footprint in the state.

The challenge and opportunity for Indiana and many communities is: 'how do we expand and grow the motorsports assets we already have?'

The authors spoke to a number of companies within the cluster and discovered that, while many of them are expecting to grow in the next five years, their growth may be threatened by a number of factors:

- There is a potential lack of qualified candidates for existing job openings and within the next five years, the baby boom cohort retirements will affect motorsports companies' growth plans;
- While there are a number of training entities in the state, they are not always well connected to the motorsports companies and some of them are under-capacity;
- The industry is facing a number of non-traditional challenges: motorsports is now part of a vast entertainment milieu, which now includes video games, other sports, movies, television, etc. The entertainment dollar that goes to motorsports is shrinking. The industry needs to diversify its income streams and should look to technology transfer and commercialization of intellectual property to generate new revenue streams;

- Local economic development officials need assistance to identify the motorsports assets in their backyards and need help developing a toolkit for helping these companies grow and for directing resources and business advice to small motorsports companies.

Indiana has a number of assets and resources that can be mobilized to secure this industry cluster's place in the state's economy and to help it grow. This study can serve as a call to action for policy makers, local economic development and elected officials, and to the state's institutions of higher education to rise to this opportunity and help grow this industry.

Introduction

Motorsports, as the name implies is about the sport of racing. In economic terms, the sport of racing (or motorsports) is unique in the world of sports. Motorsports, especially at its highest level, is about technology and ongoing innovation. Thus while the driver is important, so is the engineer, the mechanic, the fabricator, and the innovator in a small shop on Gasoline Alley, in Martinsville and in virtually all other parts of Indiana. In simple terms, football uses pigskin, baseball uses cowhide and motorsports uses Kevlar. While bats and balls remain the same, the race car is remarkably different than it was even 20 years ago. It is this commitment to innovative technology that makes the motorsports cluster so fundamentally different than other sports.

Because motorsports is committed to innovative technology and production, the motorsports cluster contains a wider range of industry sectors and its economic contribution is spread over a broader geography than other sports. While the core motorsports industries, including race tracks and events, racing leagues, race teams, media, and marketing are similar to other sports, the rest of the motorsports cluster is much different and includes a wide range of high technology engineering and manufacturing firms, as well as firms that provide materials and parts and service firms that benefit from financial and technical interactions with firms directly involved in the sport of racing.

Understanding the relationship between the core racing industry and the motorsports cluster is critical to this analysis. The core racing industry is limited to firms directly involved in the sport of racing, these firms would not exist but for the sport of racing. The motorsports cluster consists of the core racing industry and firms that provide benefits to and firms that benefit from economic and technical interaction with the core racing firms. In addition to the firms in the core racing industry, the motorsports cluster includes firms in 120 six digit NAICS codes that provide or purchase services,

materials, and/or parts to or from core racing industries. For example a race team, a race track, or a parts manufacturer whose existence depends on purchases from racing teams is part of the core racing industry. They are joined in the motorsports cluster by all the other firms, including vehicle production firms, that buy from and sell to racing firms, that share similar technology, use the same labor pool and supply chains. This also includes support services such as legal, financial, and marketing firms.

The Motorsports Cluster

Motorsports is a unique activity because it cannot be associated with any single industry code which has been previously defined by the North American Industry Classification System (NAICS). It is part sports, part precision manufacturing, part industrial design, part research and development, part advertising and marketing, part recreation, part organization of large events and so on. It is one distinctive economic activity with various facets. Identification of an industry cluster around such diverse economic and sporting activity is a challenging task. In Indiana we're fortunate to have the Indiana Motorsports Association and CONEXUS, which maintained a list of businesses and industries engaged in motorsports and allied activities.

The first task of this project was to identify the specific NAICS codes for these industries and businesses. Doing this gave us important insight into how diversified the motorsports actually is with 170 different 6-digit NAICS codes. At the same time, we conducted a review of the published literature and followed a methodology which has been used previously by several cluster studies. An Input Output analysis was conducted on the most frequent NAICS codes to identify significant supply and value chain linkages to other industries. An Indiana specific Input Output table developed by the Economic Modeling Specialists, Inc. (EMSI) was used. And finally, we also looked into the patent database and identified motorsports-related patents and their associated NAICS codes. This helped us narrow down the

preliminary large list of NAICS codes. The research team reviewed and discussed the list internally. Input from IMA members was sought and the list was further refined to 120 NAICS codes that includes industries which are directly and indirectly associated to motorsports activities.

The motorsports cluster is important to Indiana's economy in its size and diversity. Per EMSI, in 2011 there were 24,474 firms in the motorsports cluster. The 2010 estimate for employed individuals in this cluster was 421,472. The EMSI estimate for average annual earnings in 2012 for this cluster is \$62,878. The estimated statewide average annual earnings is \$50,208¹ In spite of common perceptions that associated motorsports with the Indianapolis Motor Speedway and the central Indiana region, the cluster reaches across the state. As shown in Figure 1, nearly every county in the state benefits from having individuals employed in the motorsport cluster. 28.6% of all motorsports firms are in the Indianapolis region (MSA, 10 counties according to Census TIGER file 2009); 71.4%, representing 17,468 firms and 314,209 jobs are located outside the Indianapolis region.²

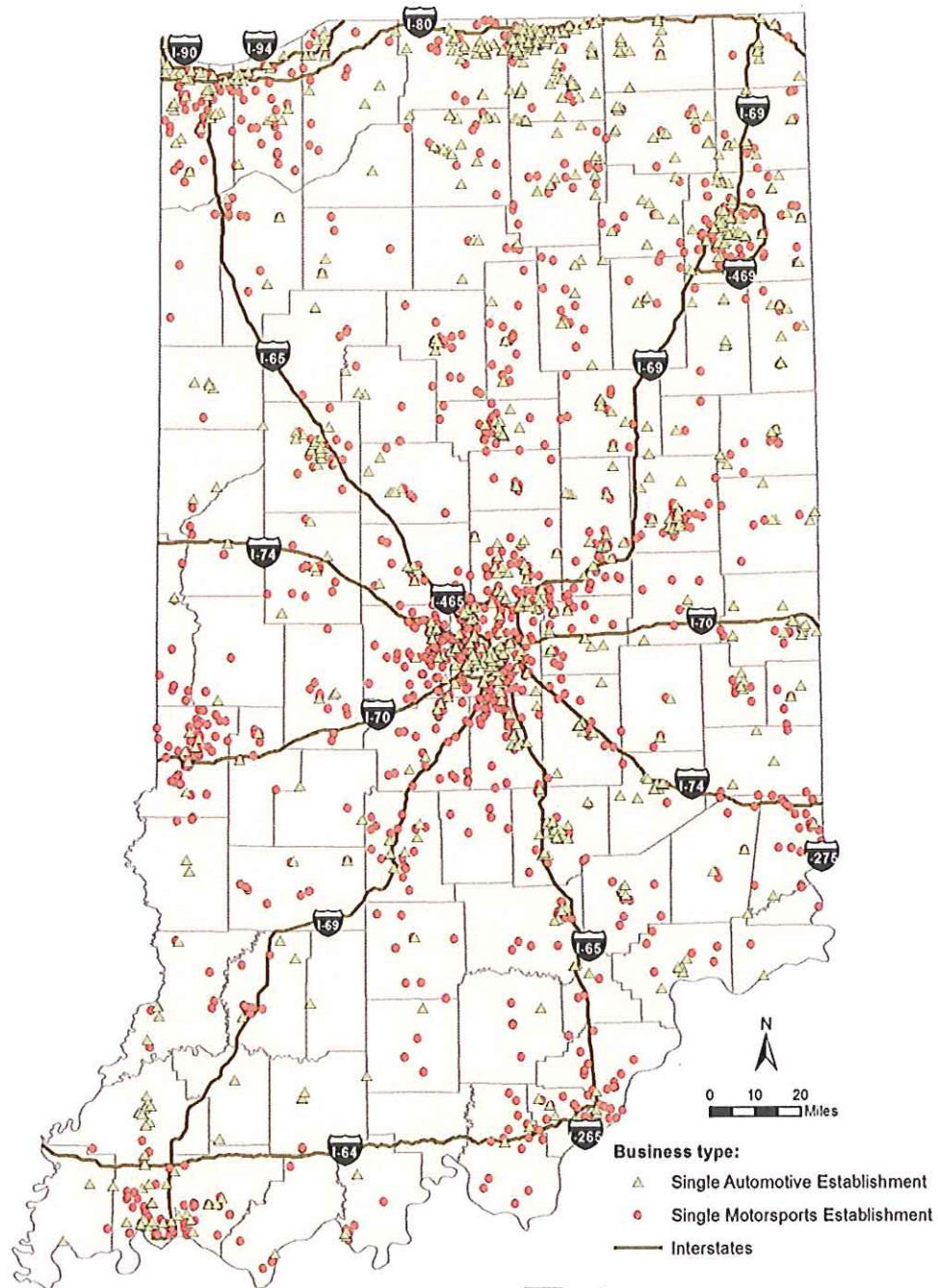
Core Racing Industry

The core racing industry within the motorsports cluster consists of the 2,130 establishments associated with the sport of racing. The core racing industry represents approximately 8.7 percent of the firms in the motorsports cluster. 23,000 individuals are employed in the core racing industry which represents 5.5 percent of total employment in the motorsports cluster. Annual average earnings of \$67,667 in the core racing industry compares favorably to both the motorsports cluster and statewide average earnings. As with firms in the greater motorsports cluster, many of the premier racing teams and facilities are located in central Indiana, but core industries are also located all across the state. The geocoded map of IMA and CONEXUS databases shows that 91 of Indiana's 92 counties have at least one racing industry-related firm (please refer to Figure 1).

¹ EMSI

² EMSI

Figure 1: Locations of businesses involved in motorsport industry in Indiana, 2011.



Map developed by the Purdue Center for Regional Development.
Data source: Geocoded locations from CONEXUS Indiana and
Indiana Motorsports Association database, 2011.

PCRD
Purdue Center for Regional Development

Core racing industries as defined in this study include race teams, race tracks, racing leagues, race car design and assembly, parts manufacturers and suppliers, and engineering firms. The core racing industry also includes a small group of radio and television broadcast companies, marketing firms, and apparel and equipment manufacturers (for both drivers and fans) that rely on racing for their livelihood. The definition, for the purposes of this study, does not include a number of charitable foundations associated with racing. It also does not include legal and accounting firms and medical/physical therapy specialists that provide services to core racing industry firms.

The Motorsports cluster is important to Indiana's economy

While its size alone makes the motorsports cluster a key component of Indiana's economy, there are other elements that combine to enhance its importance to Indiana's economic future. Among these elements are:

- The links between core racing industries and the motorsport cluster and between manufacturing and technology in Indiana is unique to the United States and rare internationally;
- The international nature of racing enhances Indiana's international image, attracts human capital and foreign investment, and engenders the business relationships necessary to globalize the market for local products;
- Motorsports is a statewide industry;
- The high-technology, high skill nature of the cluster attracts engineers and innovators to Indiana;
- The advanced manufacturing and advanced technology component of motorsports supports Indiana's manufacturing base and provides an exciting opportunity for those wishing to make their living through labor;

- The many examples of innovative development and technology transfers suggest that with some strategic refinement a much wider range and number of technology transfer opportunities could be developed; and,
- The highly skilled workforce in the cluster is potentially supported by an increasingly large collection of technology and business related programs across a wide range of universities and community colleges.

Compared to other motorsports clusters, Indiana is uniquely positioned

By most accounts, Indiana, North Carolina, and England are recognized as the three leading international motorsports economies. England is generally acknowledged as the epicenter of Formula One and the most advanced racing technologies. North Carolina is generally recognized as a NASCAR hub (although NASCAR's most prominent event, the Daytona 500, and its corporate headquarters are located in Daytona, Florida). Indiana, while generally known as the home of open wheel oval racing (including open wheel's most prominent event, the Indianapolis 500 and its corporate leadership in the form of the Indianapolis Motor Speedway and Indy Car), has a much more diverse motorsports culture including sprint cars, midgets, karting, power boats, motorcycles, the NHRA and many other forms of racing. Compared to North Carolina and England, historically, there has been a significant concentration of automotive industries and transportation equipment manufacturing (RVs, Trucks and Trailers) industries in Indiana. This is one of the unique competitive advantages for Indiana.

When looking beyond the core racing industry, Indiana is much better positioned than North Carolina to capitalize on the racing industry's relationship with the high technology, and advanced manufacturing elements of the motorsports cluster. 16.53 percent of Indiana's workforce is engaged in manufacturing compared to 10.91 percent of North Carolina's.³ The concentration of manufacturing firms likely

³EMSI

contributes to the highly-skilled and specialized work force that was the most commonly cited reason by those interviewed for why racing industry firms located in Indiana. It is also likely that other manufacturing firms benefit from exchanging workers and technology with racing industry firms.

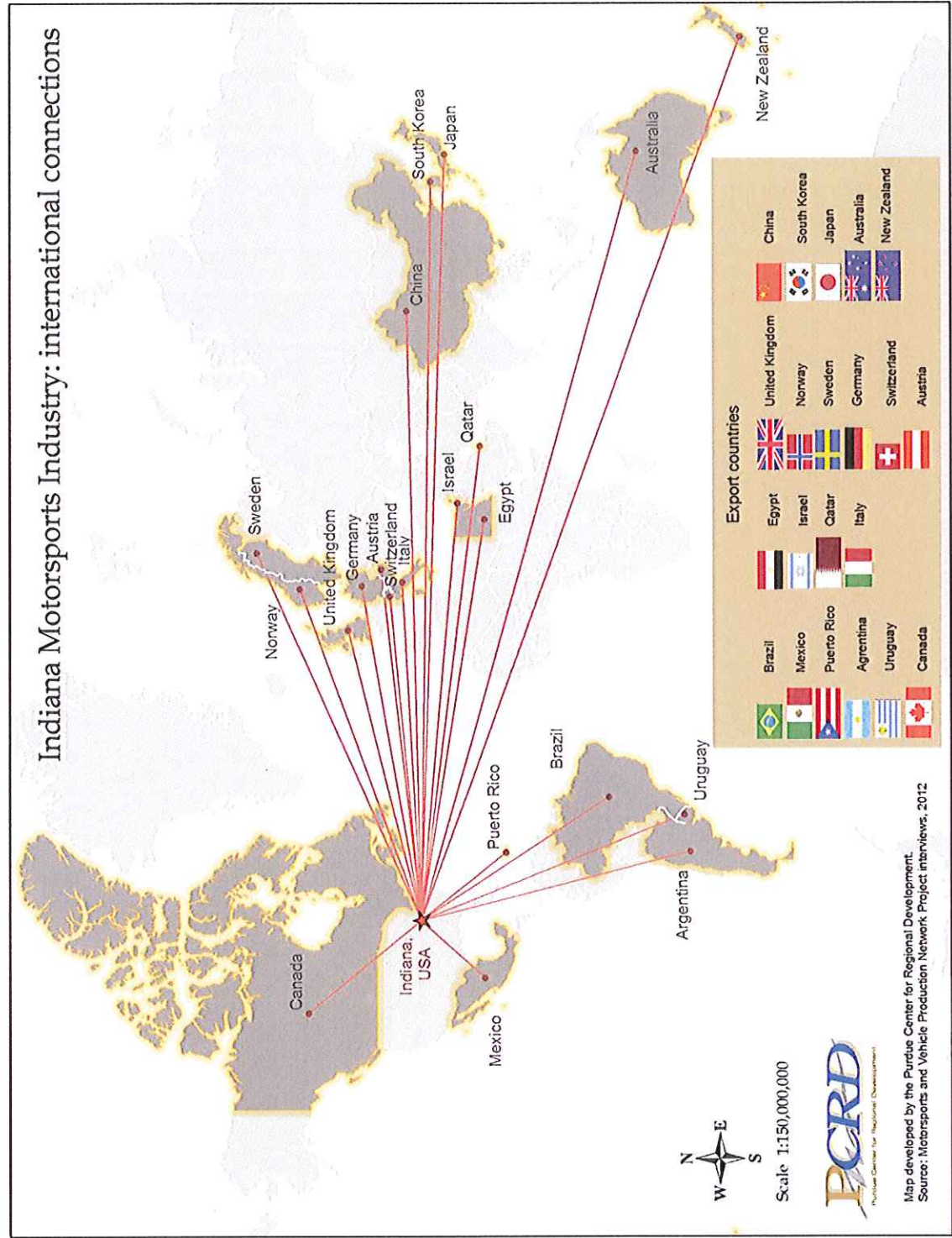
Indiana motorsports is international

In this global economic era, cities and states relentlessly seek to develop international reputations, attract foreign investment, and develop international export markets. While many in Indiana think locally when it comes to motorsports, it may actually represent one of the most internationally advanced industry clusters in the state. The racing industry attracts human capital from all over the world, exports high-technology value added products across the globe, and brings foreign direct investment to Indiana. International connections revealed during our interviews with racing industries are shown in Figure 2.

Because Indiana enjoys a preeminent position as one of the big three in the international racing community and has such a broad range of motorsports elements, it has been able to attract not only some of the best racing drivers but also some of the brightest racing engineers and entrepreneurs from all over the world. During our interviews with core racing firms, we came across a number of examples. We met an individual who relocated from England in order to help design Indy Cars. Another interviewee migrated from Australia to build chassis and compete in the NHRA. Dallara has brought a number of its Indy Car support staff from Italy to its new facility in Speedway, Indiana.

The ability to attract human capital from all parts of the world enhances Indiana's international image and also contributes directly to the economy by attracting innovators who develop new products and start new companies. Furthermore, the influx of different cultures indirectly benefits the economy by contributing to the ongoing development of a diverse population and culture.

Figure 2. International connections of racing industry in Indiana based on interviews.



In addition to importing human capital, Indiana's motorsports cluster exports many products. The motorsports exporters represent many sizes of companies. MagTech, a small firm has experienced growing demand from racers located in Australia, New Zealand, and Canada, with little or no marketing. Vance and Hines, a much larger firm, ships products to most of Europe, Australia, and ships to the growing markets in China and Japan. In addition to exporting technology and finished products, there also are firms, such as A.E.D. Motorsport Products, that ship unfinished materials across the globe. Firms such as Maingate sell merchandise and apparel globally. A number of export firms are located outside the Indianapolis region. Lingenfelter Performance Engineering in Decatur recently exported high performance Corvettes to Saudi Arabia and Russia and Lafayette-based McKinney Corporation designs and builds drag racing chassis that ship globally, most recently to an emerging Brazilian market.

There also are many examples of racing-related direct foreign investment. For example, Xtrac, Inc. has a facility in Indianapolis. Headquartered in England, this company realized that to compete effectively in the Indy Car and sports car markets, it must be located in Indiana. REGO-Fixed Tools, with corporate offices in Switzerland and known for its CNC tools craftsmanship, located a facility in Indianapolis to better serve the racing industry as well as other firms that use CNC machine tools. Finally, Dallara located its Indy Car assembly facility in Speedway (Indiana), and in a typical month purchases parts, materials or services from approximately 25 firms located in Indiana. Dallara will eventually locate its Indy Car related engineering facility in Speedway, as well.

Motorsports is a statewide industry

Many think of Indiana's motorsports cluster as being centered in and around Indianapolis and the Indianapolis Motor Speedway. And while there is a very dense cluster of racing industry firms located in the central part of the state, motorsports is actually very much a statewide cluster. For example Hoosier Racing Tire is located in Lakeville and employs approximately 250 individuals. Jasper Engines and

Transmission is located in Jasper and employs approximately 300. Landrum Performance Springs is located in Mentone and ships its products to NASCAR teams outside Indiana. Moser Engineering and Performance Tools, Inc. are sister companies with 40 employees located in Portland (Indiana). These firms engage engineers in the design and production of performance axels and precision gauges. Haulmark Industries has 50 employees, is located in Bristol and is the second largest producer of racing trailers in the United States. AFCO Racing Products in Boonville employs approximately 20 individuals. In addition to the racing teams and production companies scattered throughout Indiana, there are many racing facilities. Also of note, the New Castle Motorsports Park is owned by former Indy Car racer Mark Dismore and hosts a number of national karting events.

In fact there are approximately 1,339 core racing industry firms and 17,468 motorsports cluster firms located outside the Indianapolis region and these firms employ approximately 12,032 in core industries and 314,209 in the motorsports cluster respectively.

As shown in Figure 1, the non-metro Indianapolis motorsports and core racing firms are dispersed throughout the state. There are at least 25 individuals employed in the motorsports cluster in nearly all of the state's 92 counties.

Motorsports is a highly innovative, hi-tech, education and skill intensive industry

Motorsports is an industry that relies on constant innovation and improvement. In a 2004 report on motorsports industry in Indianapolis⁴ it was suggested that while patents are the most commonly used measure of innovation, it is not an effective measure of innovation in motorsports. There are surprisingly few motorsports related patents because the pace of innovation in the motorsports industry is so rapid that a new part or technology is often obsolete before the patent application process can be completed. Virtually every individual we interviewed who was involved in production addressed the

⁴ Motorsports in the Indianapolis Region, Drew Klacik, Center for Urban Policy and the Environment 2004.

notion that everyone in the company from the design engineer to a worker on the assembly line needs to be focused on making their parts better. The company that develops the parts that make a car faster, safer, and more enduring is going to succeed and thrive.

The necessity for constant improvement and innovation requires a well-educated, well trained and highly motivated workforce. Those interviewed suggested that the quality of Indiana's racing industry workforce coupled with the state's ability to attract some of the best and brightest racing workers results in a major competitive advantage for the state's racing industries. The 2004 motorsports study revealed that contrary to the 1950s notion of the greasy racing mechanic, nearly 70 percent of all individuals employed at racing firms had at least an Associate's degree. Among the specific skills required by those interviewed in 2004 and in 2011 are:

- 3D and computer-aided design
- Aerodynamic engineering
- Mechanical engineering
- Electrical engineering
- Tungsten Inert Gas (TIG) Welding
- CNC machine programming
- Flow analysis
- Fabrication
- Marketing
- Accounting
- Logistics
- Business management

The list of skills and specialties in the motorsports cluster clearly displays its linkages to other mechanical production sectors. This suggests an opportunity for worker and idea exchange with other business in the motorsports cluster. It also suggests the potential for technology transfers, especially when those within the cluster can address a simple but critical difference between core racing firms and the rest of the cluster. That key difference being that racing firms produce parts in in limited supply and at high rates of return per part. Other firms rely on mass production accompanied by a low rate of return per piece.

Some of the skills sought by racing firms are business-related rather than technology related. The demand for those skills were identified more frequently 2011 than in the 2004 interviews and suggest a growing awareness that innovation accompanied by sound business practices is likely to create a more sustainable operation.

Motorsports supports advanced manufacturing and technology transfers

As mentioned above, motorsports and especially core racing industry firms must constantly improve their products or lose business. As a result, all production firms have adopted a mantra of constant improvement that serves as the foundation for advanced manufacturing. Motorsports also provides those advocating for advanced manufacturing a hot and trendy industry to use to attract much needed skilled laborers into training programs and the labor pool.

The pace of innovation presents a wide range of potential technology transfers. However, while much of the emphasis appears to be on taking products invented by racing industry firms and transferring them to other applications, we believe there may be greater potential in having motorsport cluster and other firms approach the core racing industry firms with specific requests for innovative new parts and technology. Having other firms approach with specific requests is important because the motorsports

focus is not on the mass production of parts. For example, Cummins approached Bo-Mar Industries with the need for a new oil filter to fit their new fuel efficient diesel engine. Bo-Mar was able to quickly develop a customized part that Cummins was able to reproduce.

There are many examples of the potential for transferring technology from the motorsport industry to other industrial sectors including:

- Comlux is using Kevlar in their rehabilitation and remodeling of executive and luxury aircraft;
- Bill Simpson is helping to develop of a potentially safer football helmet based on his race helmet experience;
- Shields Premier Windshield performs ongoing research and design work to develop lighter and more durable windshields that are used by NASCAR in their race cars, and by Caterpillar and John Deere in their tractors;
- Klotz Synthetic Lubricants in Fort Wayne provides Indy Car teams with engine additives that increase horsepower and mileage.
- Auto Research Center: ARC's engineers used the technology they learned about drag, air flow, etc. for racing and took it to the transportation industry. As they tried to figure out how to make semi-trucks and trailers more aerodynamic they designed the fins that are attached to the bottom of trailers allowing the fuel efficiency to be increased.
- C&R: C&R designs and manufacturers several components for the racing industry including oil pans, coolant systems, etc. for NASCAR. C&R has been able to do some minor modifications to their designs and are now manufacturing these same components for the Ford Shelby Cobra Mustang.
- McKinney Corporation: Currently designs and manufactures chassis for the top levels of NHRA drag racing. McKinney Corp took some of the same designs for mounting components in race

cars to Caterpillar and is now providing parts for the heavy vehicle industry. McKinney Corp also designed a new device that holds an iPad in place on a pilot's leg while flying and has sold thousands of these to the airline industry.

- Raytheon is a major player in the defense industry. Locally, Raytheon works on the F-16 fighter jet. Raytheon has been able to bring some of their aerospace technology to the Indy Car Series.
- Hyperco is the leader in springs in all forms of motorsports. Technology they designed for motorsports is adapted through their military division for use in several military vehicles.

Occasionally, technology transfers work in the opposite direction, originating in non-motorsports industries and making their way to racing industry firms. In one prominent example, Indy Car teams adapted components made by Raytheon for the F-16 fighter jet into their aerodynamic package.

Universities are developing a wide range of technology and business related programs to support the cluster

While the quality of Indiana's racing industry workforce is frequently cited by those we interviewed as a significant competitive advantage, many of those interviewed also expressed concerns about increased demand for workers and an aging workforce. One means to address this issue is the development of proactive training and education programs. Many of Indiana's public and private universities have developed racing industry programs. IUPUI developed the nation's only motorsport engineering degree program. Rose-Hulman Institute of Technology, Trine University and Purdue University have automotive engineering courses. Marian University, Indiana State University and the University of Indianapolis have developed business-related motorsports programs focused on issues such as attracting sponsorships and managing a racing team budget. Many of these programs are taught by adjuncts from the racing industry and serves to both attract students from out of state and provide in-state students with exciting educational opportunities. Ivy Tech Community College of Indiana, Vincennes University,

and Lincoln Technical Institute provide technical training in many of the high skill production processes that manufacturing firms in the motorsports cluster require.

Indiana has made progress but challenges still remain

The core racing industry and the motorsports cluster in Indiana remain strong and globally competitive. However, state and local economic development leaders must work to capitalize on these advantages in order to maximize economic benefits. For much of its history Indiana's state and local leaders have taken the motorsports industry for granted, assuming that the state's stature as the motorsports capital of the world would assure continued economic progress. Only in the last decade have state and local leaders begun to work in partnership with those in the racing industry to maximize its economic potential. And while Indiana made progress through a major economic downturn, there are challenges that remain and opportunities that must be realized.

Progress

In the years since the initial report on motorsports in Indiana there has been much progress. The industry created the Indiana Motorsport Association to represent and advocate for the industry. The state legislature now has a motorsport caucus. The Indiana Economic Development Corporation has dedicated a staff person to the motorsports industry. Many local governments have focused on growing motorsports in their area. Many of the state's universities have developed and refined motorsports related programs in manufacturing, engineering, and business support. Indianapolis has recaptured or regrown its motorsport trade show which hosts over 23,000 visitors each December⁵. And while jobs have been lost and companies have closed their doors, the diversity of Indiana's racing industry and the

⁵ Indiana Motorsports Association

surrounding motorsports cluster has kept Indiana from experiencing the depth of economic challenges that have affected the North Carolina motorsports industry.

Challenges Remain

While complacency may no longer be a problem, there are still issues that must be addressed in order to fully capitalize on the economic potential of the core racing industry and the motorsports cluster in Indiana. These issues can be categorized as those directed towards the racing industry and those intended to more fully integrate racing into the motorsports cluster.

Many of the critical issues confronting the racing industry are related to the unique aspects of the sport, especially the size of the firms. Racing firms are, for the most part, relatively small firms. Only six of the nearly 170 firms identified through our interviews and survey had over 100 employees. Smaller firms often have challenges related to employee health and life insurance and other competitive benefit packages. Start-up racing firms tend to be small and are not likely to catch the attention of state and local development programs focused on a volume of capital investment or of employees. The result is that motorsports firms may not receive the help they need in those early formative years. This appears to be especially true in terms of job training, but may also affect access to tax abatement and other economic development tools.

Additionally, while most successful racing companies are innovative, many are more interested in helping someone to go fast than they are on entrepreneurial development. This means that many new firms survive because of product development rather than strategy and others fail because they lack the business acumen that many serial entrepreneurs seems to possess. Furthermore, in many cases, even when a racing business survives and begins to mature the owners are more interested in technology creation than job descriptions, credit ratings and other business basics.

Finally, the core racing industry provides the state with one of its most recognizable brands both nationally and globally. It attracts many overseas visitors and also generates overseas trips by locals: many of these visits, especially when they are focused on the business of racing rather than on a race, present gateways to additional economic development opportunities. Sometimes it can be an immediate business partnership. Other times it may be a marketing opportunity. In both cases it appears that there is no strategy in place to more fully capitalize on these opportunities. Even more importantly, there does not appear to be a strategy in place to maximize the share of research and development captured in Indiana while reducing the amount of this work that leaks out of the state.

Many of those interviewed suggested that a stronger and well-funded Indiana Motorsports Association is critical to maximizing the economic potential of the core racing industry. The Indiana Motorsport Association provides a key link between the firms in the racing industry, state and local economic development officials, as well as the universities and colleges that wish to participate in growing the industry. A critical developmental component for the Indiana Motorsports Association is a strategic planning process focused on internal and external clients.

The project team

The Motorsports in Indiana project team represents a partnership among Purdue University (Purdue Center for Regional Development), Indiana University (IU Public Policy Institute) and the Indiana Motorsports Association (IMA). Each of these organizations brought unique skills including Purdue's primary academic work regarding cluster analysis, IU's applied research experience regarding motorsports and the IMA's insider knowledge of and relationships with firms in the motorsports cluster. In addition to their unique experiences the organizations also had many common characteristics including a commitment to quality, unbiased work, dedication to making the partnership work, and enthusiasm for exploring the economic potential of the motorsports industry.

Perhaps most importantly, the seamless integration of the IMA into the Purdue/IU partnership meant that we had a level of access to and cooperation from the motorsports industry that enabled us to develop a full understanding of the opportunities to more fully energize Indiana's motorsports economy as well as the issues that have hindered our ability to fully capitalize on those opportunities. The relationships built during our research will serve as a long term asset as we strive to develop the infrastructure and strategies required to activate and accelerate the full economic potential of the motorsport industry.

The primary project team was provided with project specific advice and counsel by the Indiana Economic Development Corporation, Indiana Office of Community and Rural Affairs, American Structure Point, Rose-Hulman Institute of Technology, officials from the town of Speedway, and several of the state's leading practitioners of local economic development.

Motorsports and Vehicle Production Network (MVP) Action Plan

In the original proposal, 'Race to the Future:' Integrating Central Indiana's Motorsports and Vehicle Design & Manufacturing Assets into a Motorsports & Vehicle Production Network, the overall project design called for a four phase approach:

1. Articulating the MVP Network – identifying the cluster and an analysis of the network;
2. Activating the MVP Network – mobilizing and convening stakeholders within the MVP network;
3. Accelerating the MVP Network – targeting investments and identifying public and institutional policies to accelerate activity within the network; and,
4. Assessing the MVP Network – to track progress over time and make adjustments as necessary.

As often happens when assumptions are confronted by reality, assumptions fall by the wayside. That is the value of conducting research to test whether assumptions, even those that were long-held and intuitively believed, match reality.

Early in the initiation of the MVP study, one major assumption about motorsports in Indiana fell to objective reality: the assumption that motorsports in Indiana is exclusive to the greater Indianapolis region.

When two significant databases of motorsports assets were geo-coded and plotted on a map of Indiana, we learned that motorsports touches nearly all of Indiana's ninety-two counties.

The Motorsports and Vehicle Production Network study was initiated with a number of implicit assumptions in place:

- That motorsports assets were concentrated almost exclusively in Central Indiana; an assumption formed by the presence of two major venues in the region, the Indianapolis Motor Speedway and Lucas Oil Raceway Park and the presence of a number of highly visible Indy Car teams;
- That the high degree of innovation occurring within motorsports companies readily positions these companies to leverage intellectual property into new commercial ventures and innovations that can cross into other vehicle platforms; and

- That the motorsports cluster in Indiana is relatively self-contained; i.e. that motorsports companies generate much of their own innovation, easily attract talent because of their high visibility, and that the industry is relatively self-sustaining.

We learned early in the research that many of our initial assumptions were misdirected and that our early expectations about how to proceed to support and grow the industry in Indiana underestimated the extent of the cluster.

Our initial assumptions also discounted the degree to which the motorsports cluster in Indiana is significantly challenged by workforce availability. Many of the companies we interviewed indicated that expansion plans, and perhaps even their ability to maintain their current market position, are threatened by lack of talent. The workforce shortage is a challenge addressed today by importing workers from other markets or by the movement of top talent from one company to another. The impending retirement of the baby-boom cohort represents a serious concern for these firms.

Because our image and understanding of the size, scope and complexity of the motorsports cluster in Indiana evolved substantially during Phase One of this project, our projection of how to proceed has consequently evolved since our original project proposal.

Phase Two, 'Activating the Network,' and Phase Three, 'Accelerating the Network,' now seem to be two conjoined action steps that need to be implemented in tandem.

As we contemplate next steps it seems crucial to simultaneously convene and mobilize the motorsports network toward action. For Phase Two, *Activating the Network* a first critical step is the release and dissemination of this report to critical audiences in Indiana. Helping to create an accurate image of the size, scope and impact of motorsports in the state is an important foundation for building collaboration and momentum.

Given our current understanding of the motorsports industry in Indiana and the action steps that need to be initiated, coordinating members of the network should include:

The Indiana Motorsports Association - The IMA is the convener and 'voice' for motorsports around the state. The IMA was formed by members of the motorsports industry to represent the industry's interests on a variety of issues and has been a critical partner during Phase One of this project;

The Indiana Economic Development Corporation – The IEDC is the marketing and coordinating entity for economic development within Indiana state government;

The Purdue Center for Regional Development – PCRD has been the managing partner and staff for Phase One of this project and is generally recognized as an 'honest broker' and convener for initiatives such as this;

Indiana Office of Community and Rural Affairs – OCRA has played a critical role in Indiana in the last eight years by developing leadership capacity in Indiana's rural areas;

And as we prepare to 'activate the network' the members of the extended network will include:

Town of Speedway – the perceived 'epicenter' of motorsports in Indiana;

Conexus Indiana – Conexus is the industry-led group formed to address workforce needs within the advanced manufacturing sector in Indiana;

Eco 15 – A coalition of 10 southeast Indiana counties organized and led through the Community Education Coalition in Columbus to address advanced manufacturing training needs;

The Indiana Economic Development Association – IEDA is the professional association for local economic development officials (LEDO's) in Indiana. IEDA offers professional development for its members among other services;

Universities and Colleges – Universities and colleges, depending upon their missions, will be engaged to address workforce issues or assist with technology transfer or both. Institutions include, but may not be limited to:

Indiana University – Purdue University at Indianapolis (IUPUI)

Purdue University and the Purdue Research Foundation

Indiana University (including regional campuses at Kokomo and Richmond) and the IU Research and Technology Corporation

Rose Hulman Institute of Technology and Rose Hulman Ventures

Vincennes University

Ivy Tech Community College – Corporate College

University of Evansville

University of Southern Indiana

Trine University

University of Notre Dame

Marian University

University of Indianapolis

Indiana State University

Motorsports Caucus of the Indiana General Assembly –A self-identified group of state senators and representatives who monitor and champion legislation directed to the motorsports cluster in Indiana;

Crane Naval Surface Warfare Center - Crane NSWC is an installation in South Western Indiana that focuses on technology support for the Navy.

For Phase Three, *Accelerating the Network*, an action plan to support the motorsports cluster in Indiana should focus on three fundamental issues:

1. Workforce and Talent Pipeline and Training;
2. Technology Transfer and Commercialization Into and Out of the Cluster; and,
3. Tools and policies to support statewide and local efforts to grow the cluster.

Throughout the mobilization of the motorsports network, we will employ the facilitation process known as *Strategic Doing* to meld planning and action into a dynamic process. An overview of Strategic Doing is available as Appendix 7.

Workforce and Talent Pipeline and Training

As a cluster that sits atop the advanced manufacturing cluster, it should not have been a surprise to learn that motorsports faces some of the same talent challenges that have been plaguing advanced manufacturing in Indiana for the past decade. The challenges facing the motorsports cluster in Indiana are more daunting because the workforce for companies within the motorsports cluster are operating at a sophistication and precision level that in some cases, surpasses even the other advanced manufacturers in the state.

The challenges faced by the motorsports cluster parallel those of other advanced manufacturing firms (quantity of applicants, pending retirement of the baby boom cohort) and are in some ways unique (unique skill sets for workers/quality, adaptability).

A unique opportunity for the motorsports cluster is the cache the industry has; an image that it has not leveraged as a tool for creating a unique talent pipeline for the cluster and for other forms of advanced manufacturing.

Indiana likewise has a unique mix of institutions of higher education that may provide the intellectual capital needed by the motorsports industry, but with one major exception (IUPUI) these institutions have not consistently packaged their offerings to cater specifically to the cluster.

Even though there are many programs that may meet the existing needs of the motorsports cluster, a comprehensive connection between high schools, colleges, universities and the motorsports cluster has not been effectively facilitated.

Initiatives already underway through Conexus, an advanced manufacturing cluster support entity, to connect high school students to advanced manufacturing careers, are piloting efforts to address the pipeline issue. It may be that these initiatives could be augmented with a direct connection to motorsports.

For example, Conexus' Hire Technology curriculum would seem to fit the profile of a pipeline activity, focusing efforts in eight pilot high schools around the state and bringing students into junior and senior year classes that allow them to earn nationally recognized industry credentials and dual high school and technology credits.

Conexus is also managing a statewide program, *A+ Partners* that matches advanced manufacturing companies with an Indiana high school or career center to better promote jobs in the manufacturing sector and to assist educators and parents in directing students to these jobs.

In both cases, the visibility of motorsports could provide additional leverage and bring new attention to these programs. Given that we now understand that motorsports is a statewide industry, there are likely opportunities to engage with the pilot schools already participating in the Conexus pilot. This is also an opportunity for motorsports companies to act in their own self-interest by engaging in activities to grow the talent pipeline.

Existing training and workforce assets in the state include:

- The Indiana Center for Applied Technology (ICAT)/Haas Center at Vincennes University that focuses on a two-year degree program for CNC operators, CAD/CAM, welding and other industry demanded skills training;
- Engineering degrees at Purdue, Trine, Rose Hulman Institute and University of Evansville, and University of Southern Indiana;
- Certificate programs in CNC and other advanced manufacturing skills through Ivy Tech Community College;
- The Corporate College at Ivy Tech that will offer on-demand, industry specific training packages;
- The Motorsports Bachelor of Engineering at Indiana University – Purdue University at Indianapolis (IUPUI);
- And other for-profit technology schools such as Lincoln Tech, Indiana Tech, etc. that may provide some level of support.

(See Appendix 5 for an initial listing of course offerings, curricula, available certifications, etc.)

One of the biggest challenges facing motorsports and advanced manufacturing in Indiana is generating enough candidates for the higher education and skills training programs currently available and operating at less than capacity. Not enough high school students select career paths that lead to careers in motorsports and advanced manufacturing. Vincennes University estimates that their ICAT/Haas Center is operating at approximately one-third of its student capacity. While motorsports companies speak glowingly about graduates of the VU program, they wish there were more graduates to meet their needs.

Two initiatives in Indiana are attempting to address the challenge of encouraging more young people to choose careers in advanced manufacturing: Conexus, which is initiating a pilot project in eight Indiana

high schools and Eco 15, a project operating in 10 counties in Southeast Indiana. These programs, while different, have a goal of working with educators, industry, parents and students to create a more robust talent pipeline to supply advanced manufacturing companies in Indiana with the skilled and trained workers they need.

As we have reviewed efforts to 'fill the pipeline ' for advanced manufacturing we have wondered if branding some of these opportunities as 'motorsports' would confer a level of prestige upon these skill sets and career options that may not be present for advanced manufacturing.

Even if the pipeline were to be filled today, Indiana still lacks a comprehensive review of industry training and skills needs. An appropriate mechanism for connecting motorsports firms to training must be created and a catalog of existing training offerings could be produced to streamline the connection between motorsports and educational opportunities.

Specific Action Steps – Training Curriculum

1. Assemble a compendium of certificate programs, two year, four year, and custom training options that fit within the motorsports cluster. This initial compendium will serve as a starting point for further review.
2. Through the Indiana Motorsports Association, convene a review panel composed of motorsports companies to review the training offerings. Identify outdated or inappropriate offerings and identify gaps.
3. Conduct in-depth interviews with motorsports companies to develop a more thorough understanding of training and talent needs.
4. Convene the colleges and universities to meet with industry representatives to review the training recommendations, identify new needs and opportunities, and talk about models for recruiting students to existing programs.

5. Develop and implement a 'motorsports training consortium' that will facilitate the creation of a motorsports training marketing plan. The plan would focus on highlighting careers in motorsports for high school students and their parents and link those careers to specific training opportunities at Indiana institutions. Additionally, the consortium will facilitate the development of new, industry-specific training options that support motorsports and will work as a liaison between motorsports firms and educators.
6. Create a motorsports talent 'brand' to better promote career opportunities within the industry and to promote the wide variety of career opportunities available in Indiana. Use the 'brand' to make more students and educators aware of the small firms in the state. Ongoing refinement of the industry skills needs would lead to the development of a 'motorsports career ladder.'

Specific Action Steps – Motorsports 'Talent Pipeline'

1. Working with Conexus and with Eco 15, identify 2 – 4 pilot sites where the typical advanced manufacturing promotion is supplemented with 'motorsports' marketing. The goal of this activity would be to test the idea that motorsports may be a more effective attractor for recruiting students to training programs that have previously only been marketed as 'advanced manufacturing.'
2. Working with Conexus' A+ Partners program, recruit motorsports companies to serve as partners with select schools. Identify a minimum of 4 – 5 companies in two pilot regions to explore the feasibility and effectiveness of the program as a recruitment opportunity.
3. Because many of the motorsports firms are relatively small, it is difficult for them to establish a 'presence' at career days or on university campuses. A motorsports career booth should be created to promote the industry in general, but also specific opportunities with individual companies to acquaint students with job opportunities within Indiana. This booth

could be staffed and managed by the Indiana Motorsports Association. The project could have further impact if drivers and engineers spent time in the booth.

4. Continue efforts already in place at Purdue to place engineering students with IndyCar teams.

Technology Transfer and Commercialization Action Opportunities

In the original model for the Motorsports and Vehicle Product Network project, project planners assumed that the motorsports cluster generates a considerable amount of intellectual property. And to a degree, that assumption is correct: intellectual property is generated by race teams and companies supporting them. But, unexpectedly, intellectual property is not routinely protected with patents: the industry moves too fast during the race season, innovates on a weekly basis, and the patent process is too slow to keep up with the speed of innovation required.

Additionally, companies in the motorsports cluster don't look to universities for technical assistance or research and development for a related reason: university processes and bureaucracy can't meet the need for speed and quickness required by the competitive motorsports industry.

Consequently, one of the principle aims of this project – exploration of technology transfer opportunities – will not be easily accomplished within the current industry and university structures. While there are scattered examples of technology transfer, the hope of transferring technology out of the motorsports cluster and into passenger vehicles is difficult given the current lack of patent protection within motorsports. This doesn't mean that innovation within motorsports couldn't be applied to other vehicle platforms; it's just that the current lack of IP protection limits that opportunity. It is nearly impossible to know what innovations are present that could be applied outside of motorsports.

Yet, given the rising costs of fielding a motorsports operation, an opportunity to generate additional cash-flow through licensing and commercialization could be a welcome infusion of cash for cash-strapped motorsports entities.

The potential opportunity to commercialize motorsports innovation may also help to expand the industry in the state and create new ventures in communities outside of the greater Indianapolis area.

To facilitate technology transfer out of the motorsports cluster into other industries or to commercialize technology, an intermediary must be created to leverage the process. Motorsports companies have not, up to this point, identified technology transfer and commercialization as a desirable opportunity and a mechanism for facilitating the process does not exist.

A unique model that has been deployed within universities, or within specific companies, but not across an industry, is the model of a 'technology harvester.' A technology harvester is an individual (or team) that reviews technology holdings within a company to determine whether intellectual property held by the company has commercial potential. In most cases, the harvester categorizes intellectual property that must be held, that which has no commercial potential, that which could be licensed, and that which could be sold outright.

Within the context of this project, a harvester team could be deployed to review technology and intellectual property within the race team organizations, engineering and R&D firms and identify intellectual property with commercial potential.

Be aware, only a small percentage of technology that is initially identified as having some commercial potential is actually ever commercialized. Companies have a difficult time identifying whether a technology is non-essential or may have some future application that would require it be kept in-house. Further, companies, particularly those as competitive as motorsports companies, have a difficult time

convincing them that technology sold into the marketplace won't someday be used by a competitor to establish a competitive advantage.

But, for those companies that successfully license or commercialize orphaned technology, a new revenue source is created that can help motorsports firms whose cash-flow is somewhat seasonal generate a more stable and diversified revenue source.

Generating new start-ups that could become potential suppliers to these companies may help stabilize the supplier network, grow local economies, and reduce shipping and warehousing costs for the end user.

Given the dynamics of the motorsports industry, the harvester model would best be deployed in the off-season when time demands are diminished somewhat.

Action Steps to Increase Technology Transfer and Commercialization

1. Create a pilot team of engineers, university researchers and/or entrepreneurs with motorsports and/or automotive background. This team must be able to pass extensive security checks to inspire confidence and trust from the companies that they will be working with.
2. Assemble a cadre of IP attorneys who will assist in a pilot project by offering reduced legal rates to assist companies in filing patent applications.
3. Promote the technology transfer opportunity to motorsports companies through the Indiana Motorsports Association and assemble a group of pilot companies that are willing to participate in a pilot project.
4. Within the companies that have agreed to participate in the project, the harvester team will interview mechanics, engineers, researchers or others who have worked on inventions and innovations and who can adequately describe the underlying technology.

5. Because identifying commercial applications can be challenging, this pilot project can be a good opportunity to engage entrepreneurship programs at Ball State, Purdue, and Indiana University to allow students to review IP portfolios and brainstorm market opportunities for individual technologies.
6. Following a model created by the Purdue Research Foundation, technology available for licensing could be assembled into a 'technology road show,' in which potential investors are invited to a 'show and tell' display where potential technologies are explained and demonstrated.

Another challenge within the motorsports cluster is the constant need for innovation. It would seem as though there would be ample opportunities to connect the motorsports industry with the research assets at the universities in Indiana, but the motorsports teams report that the bureaucracy and slow pace within the universities make it difficult to work with them.

As part of the research, we visited with Crane Naval Surface Warfare Center. Crane is a technology center that provides a variety of services to the Navy, particularly in upgrading technology for legacy systems. Crane is a unique asset that could address a variety of innovation and technology for a variety of motorsports assets in Indiana.

Rose Hulman Ventures (RHV) is another unique resource available to Indiana companies. Rose Hulman Ventures, operating in tandem with Rose Hulman Institute for Technology, deploys student teams under contract with specific companies to solve technical challenges. These student teams are supervised by distinguished faculty and work to solve real-world, technical challenges.

In working with both universities and Crane, the challenges should be able to be addressed. What will be needed is to create a 'translation' mechanism that can serve as an intermediary between the motorsports companies and the university and Crane assets. University researchers and the technicians

at Crane often use terminology that is unique to their endeavors and that doesn't easily translate to industry.

Action Steps for Increasing Innovation Connections with Motorsports Companies

1. Work with Purdue Technical Assistance Program (TAP), Crane NSWC, Rose Hulman Ventures and the Indiana Motorsports Association to create a 'concierge' model that will facilitate connections between TAP, Crane , and RHV;
2. Facilitate a review of technical assistance expertise that resides within the universities, Crane, and RHV to create a working inventory of potential assistance models for the purpose of shortening the time between industry need and university/Crane response. While the inventory may not anticipate all industry needs, informed anticipation of industry needs may shorten the response time. While the model may initially be focused on motorsports, it if is successful, it may be extended to other industries as a way to better facilitate technical assistance. Students in the Motorsports Engineering Program at IUPUI might be able to serve assist as an inventory team which would further engage them with the industry.

Statewide and Local Motorsports Economic Development

When the motorsports assets in Indiana were first mapped for this project, project participants were pleasantly surprised by how geographically dispersed motorsports assets are across the state. In the process of conducting this project, additional assets were discovered. We now understand that motorsports touches 91 of Indiana's 92 counties. The assets include race tracks and sole-propriatorships, but also include engineering firms, fabricators, race teams, tool and die shops, marketing firms, research and development, and other economically viable firms.

Because 'motorsports' is a highly visible industry, the presence of these assets around the state create an economic development opportunity that may positively affect not just the Indianapolis, Speedway, and Brownsburg area of the state where many visible firms are located, but creates a new opportunity to generate economic growth.

The Indiana Economic Development Corporation has in place a motorsports division that has concentrated on providing support and recruitment for motorsports assets in the state. But a unique opportunity exists to further extend the model into areas of the state where motorsports is not typically understood as an asset: our research indicates that the assets are potentially more widespread than first understood.

To facilitate growth in outlying areas of the state, local economic development officials (LEDO's) will need help in identifying viable motorsports assets in their areas and in determining whether these assets represent viable growth opportunities.

Action Steps to Grow and Support Motorsports Assets

1. The creation of the MVP Motorsports Asset Map is a critical first-step in helping to establish opportunities for local economic development. The underlying databases from the Indiana Motorsports Association and Conexus provide a list of assets that can help local officials to identify opportunities in their communities.
2. Engage the Indiana Economic Development Association to develop workshops to be offered to its members at IEDA events. These workshops would target issues specific to motorsports companies and assist local economic development officials in identifying companies in their counties and learning to provide assistance to them.
3. We would recommend selecting three pilot areas in Indiana to focus upon for growing motorsports assets:

- The I-70 Corridor stretching between Terre Haute and Indianapolis where there is an obvious concentration of motorsports assets. This corridor includes major urban areas as well as predominantly rural areas;
 - Northeast Indiana where motorsports assets are most logically also connected with the defense and orthopedics industry in that region; and
 - A predominantly rural area of the state where motorsports could create a significant impact by attracting a sophisticated workforce and where growing the industry could yield significant economic impact on the regional economy. Southeast Indiana is a predominantly rural area that would include motorsports, auto manufacturing, but that would also encompass watercraft manufacturing and racing along the Ohio River.
 - This mix of areas would create a diverse laboratory for fostering opportunities to grow motorsports firms and for growing the supply chain within Indiana.
4. Within selected regions, the pilot project should work with local economic development officials to better identify the motorsports companies in their area, to create a more detailed understanding of their supply chain and customer base to begin to identify local suppliers and customers for these companies.
 5. Pilot project administrators would help local economic development officials develop a template that would target assistance needs for local motorsports firms and would facilitate statewide connections to training assistance, technical assistance, business support, or connections to other companies as needed.
 6. Looking at two to three areas in the state where there is a geographic clustering of motorsports teams (Central Indiana, Terre Haute and Greater Fort Wayne) economic development corporations should explore the creation of a virtual incubator process to foster the creation of new motorsports firms. Given the potential existing wealth within the cluster, it is possible that

dedicated angel networks could be formed to foster motorsports start-ups, existing business support networks could be adapted to assist these start-ups and in some cases it might be preferable to create a motorsports-specific incubator that would cluster diagnostic equipment, basic tools and facilities while also providing access to business, legal and financial advice.

7. Given the extensiveness of the motorsports assets in Indiana, there is a unique opportunity to create a motorsports tourism initiative. Indiana is home to many old and unique race tracks, the Indianapolis Motor Speedway Museum as well as race team facilities that could be packaged in concert with major events at the IMS to create weekend tourism events that could create benefit to a number of smaller communities in Indiana.

Motorsports Cluster Definition Process

This section describes the process for defining the motorsports cluster. According to Kosheleva, various statistical methods are available for classifying industry clusters, which include Input Output Analysis, Cluster Analysis, and the Graph Theoretic methods (Kosheleva, 2005). These methods are mainly applicable on the input-output transactions table and hence explore value chain linkages among industry sectors. However, industries within a cluster might have diverse linkages in addition to the value chain and supply chain connections. Nolan et al. (2007) describes that clusters, in general, are regional concentrations of competitive firms that:

- Buy and sell from each other
- Use similar technologies
- Share same labor pool and supply chains
- Require similar and complimentary knowledge and skill-sets
- Include supporting services, specialized infrastructure, and institutions
- Include both high and low-value added employment
- Produce for export outside the region; and
- Drive the creation of wealth in a region

Within an industry cluster, there is a healthy amount of competition and rivalry which also leads to innovation, new ideas, knowledge-spillovers and spill-ins. Clusters can also be described as a network where individual firms and institutions are the nodes and various transactions and connections are the links. Indiana's motorsports cluster exhibits similar characteristics. Motorsports may give an image of zooming cars, celebrity drivers and festive racing events; however behind-the-scene, a variety of industries and businesses are contributing to motorsports activities. The research team identified industries and businesses that are connected to the motorsports by exploring various linkages mentioned above. We followed a hybrid approach of quantitative and qualitative methods so that we could uncover different linkages within the motorsports cluster. This included the following steps:

- Literature review
- Identification of North American Industry Classification System (NAICS) codes for Indiana Motorsports Association (IMA) and CONEXUS databases

- Input Output (IO) analysis to identify backward and forward linkages for selected industry sectors
- Study of motorsports-related patents and identification of NAICS codes
- Discussions within the research team
- Input from the IMA board members

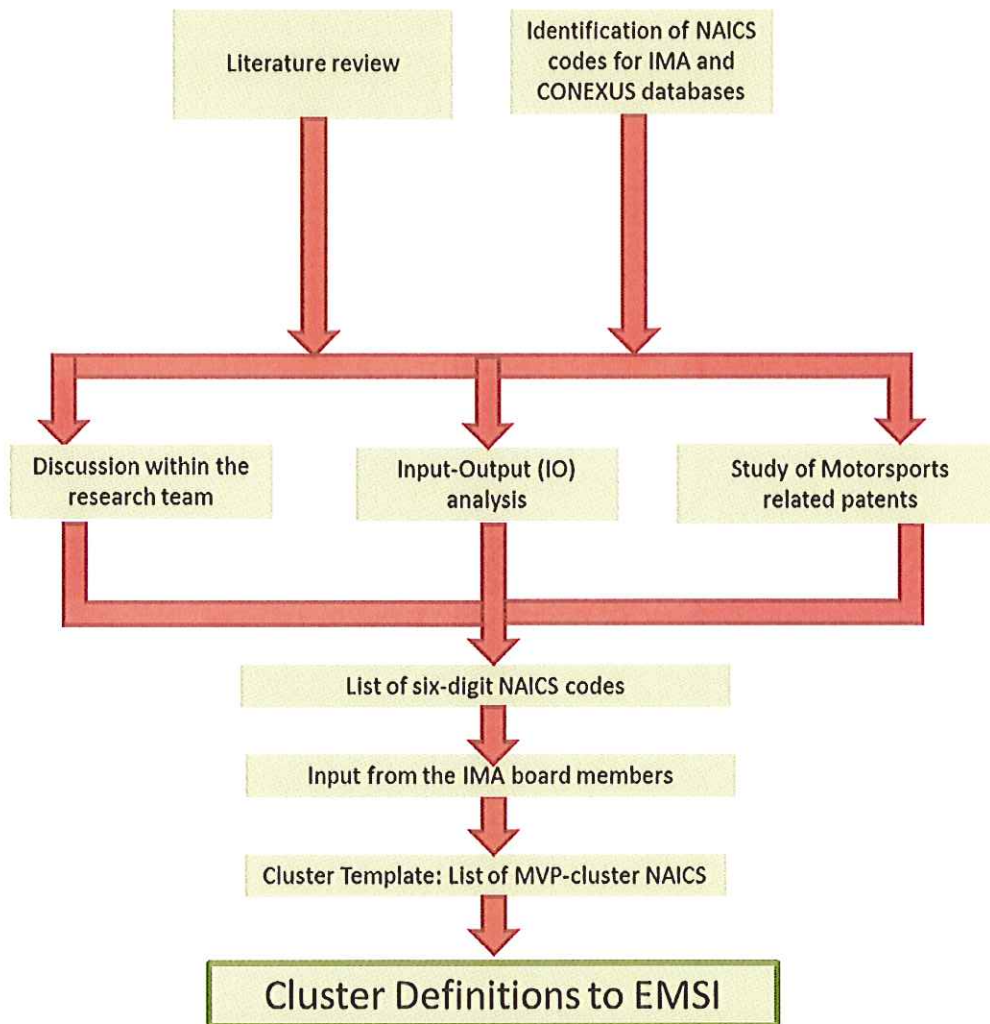
Figure 1 shows a schematic diagram of the cluster definition process. The following paragraphs describe the literature review and methodology in detail.

Literature Review:

Compared to motorsports, numerous studies have been published on automotive cluster studies including U.S. and international case studies. Within motorsports, several studies are available on economic impact analyses, however a comprehensive study on definition of the motorsports cluster was not found. Previously, the motorsports industry has been defined for purposes of economic impact analysis. For example, Connaughton and Madsen defined motorsports industry in North Carolina as a combination of around 40 “Impact Analysis for Planning” (IMPLAN) industries, which included more than 40 different 3-, 4-, and 5-digit NAICS codes to assess statewide economic impacts of the motorsports industry (Connaughton, 2004 and 2006). Similarly, during a study of the motorsports industry and university linkages in terms of knowledge interactions, Viljamaa recognizes the team-firm nature of NASCAR teams that employ a highly skilled workforce and engage in diverse activities in-house, such as R & D and advertising (Viljamaa, 2007). Motorsports race teams and shops are firms with diverse activities which cannot be defined with a single NAICS code. Any economic analysis needs to account for this unique aspect of the motorsports cluster. Mitchelson and Alderman, in their “Mapping NASCAR Valley” paper, emphasize the diversity of innovations taking place within the motorsports cluster and also recognize that racing team garages are at the heart of this cluster (Mitchelson, 2011). Research also reveals that motorsports industries have large economic impacts on the Charlotte region. The study by Connaughton and Madsen found that the motorsports industry’s total output impact was \$5.9 billion and the total employment impact was slightly over 27,000 jobs in 2005 (Connaughton, 2006). This includes direct expenditures and the associated indirect and induced effects. Another aspect of motorsports is the faster pace of innovation, which was recognized by Klacik and Cook in their study of motorsports industry in the Indianapolis region, an important hub of motorsports activities in the U.S.

(Klacik, 2004). They found that the pace of invention and rate of obsolescence were faster than the patent granting process. This also explains why the keyword search in the United States Patent and Trademark Office (USPTO) database resulted in small number of patents. Klacik and Cook's 2004 study found about 8,800 jobs in the motorsports industry in the Indianapolis region. This literature review illustrates the diversity in motorsports and also reveals that a systematic study to identify industries with linkages to motorsports is needed.

Figure 1: Cluster Definition Process



Identification of NAICS codes for IMA and CONEXUS databases:

Purdue Center for Regional Development (PCRD) geocoded the motorsports and automotive businesses and industries obtained from Indiana Motorsports Association (IMA) and CONEXUS databases in 2011. These databases included more than 2,300 establishment locations represented by more than 140 unique NAICS (2007) six-digit codes. We identified and assigned NAICS codes to every establishment and business in the database. Many firms were engaged in diverse activities and they could only be defined through more than one specific six-digit NAICS code. We found a few firms so diverse that they were assigned up to seven different six-digit NAICS codes. The identification of secondary, tertiary and even four and five different NAICS codes reveal that many firms are engaged in varied activities related to motorsports. It should be noted that motorsports industry does not have a single NAICS code. In fact, diverse industries from various NAICS groups participate in motorsports-related activities and hence constitute the motorsports cluster. We use six-digit NAICS codes, the most detailed classification for industries, for developing the motorsports cluster definition. Please refer to Appendix 1 for methodology of the IMA and CONEXUS database construction.

IO Analysis for Selected Industry Sectors:

The combined database from the IMA and CONEXUS is exhaustive; however, it is based on membership and voluntary disclosure of information. They might not capture different kinds of industries which could be linked to motorsports-related activities in economic and many other ways mentioned previously. The IO analysis facilitates identification of economic linkages or purchasing and selling patterns between industries. It is also known as backward and forward linkages between industries which reveal who they are “purchasing from” and who they are “selling to”. In a way, the IO table shows the embedded supply chains and also reveals the value chain of industries as “production function” for any industry can be derived from an IO table.

We ran a frequency analysis for various NAICS codes present in the combined IMA and CONEXUS database. Racing teams and race tracks defined as “Other Spectator Sports or NAICS 711219” emerged as the most frequent with 901 establishments in the combined database. However, we also found that many NAICS codes had only one establishment. The IO analysis was conducted for the nine most frequent NAICS codes. The economic linkages between industries (NAICS codes) in an IO table are represented by a square matrix with industries in rows and columns and transaction values in dollars (\$) as cell entries. For this study, we obtained the IO transactions table for Indiana from Economic Modeling

Specialists, Inc. (EMSI, 2011), which is comprised of $1,120 \times 1,120$ square matrix of 6-digit NAICS codes. It should be noted that the IO transactions matrix for Indiana contains more than one million cells; however, IO transactions are vacant for those industries not existing in Indiana. For the top nine most frequent NAICS codes with higher frequencies, we analyzed their backward and forward linkages. If the amount of transactions was \$100,000 or more in backward (purchasing) as well as forward (selling) linkages, those NAICS codes were retained as candidate NAICS codes having strong economic linkages with the primary NAICS codes. NAICS codes with transaction value of less than \$100,000 between industries were excluded. Next, all industries with \$ 100,000 or more transactions both in backward and forward linkages were compiled into one list and duplicates were excluded. The list was further reduced by excluding industries with location quotient values of less than one ($LQ < 1$). This criterion removed those industries which were not export oriented.

The IO analysis revealed interesting linkages. For example, health sector NAICS codes turned out to be linked to motorsports and automotive sectors. Specific NAICS codes in health sector included surgical appliance and supplies manufacturing, which is the NAICS code for protective safety helmets manufacturing.

Study of motorsports-related patents:

A lot of research on innovation has included “patents” including assessing its pros and cons as an indicator for innovation. The arguments against patents include a considerable lag between invention of a product and the granting of a patent and lack of easily accessible data on inventors and their inventions. Hence patents have some limitations in reflecting ongoing and most up-to-date innovations in a discipline. Nevertheless, the usefulness of patents as one of the indicators or a barometer of trends in innovation has been proven. Many research projects including “Innovation Index” in the Economic Development Administration (EDA) funded project “Crossing the Next Regional Frontier: Information and Analytics Linking Regional Competitiveness to Investment in a Knowledge-Based Economy”, has used “patent activity” as one of the output indicators for innovation. In this project, patents are explored to identify types of industries and their NAICS codes, which have been developing new products associated with the motorsports.

We used the USPTO database that has provisions for keyword search including both the Patent Full-Text and Image Database (PatFT). This database contains full-text information on patents since 1976. A search by “motorsports” keyword in the full-text revealed 152 patents. The TIFF image patent database,

which has patent information since 1790, is not convenient for searching by keywords. These patents were further studied to identify their NAICS codes. The objective is to identify those industry sectors, which have been developing innovative products in the motorsports. Specialized apparel and footwear, protective racing suits and protective body-guards constituted many patents. Several patents were also in the category of gasoline engine and engine parts manufacturing, motor vehicle electrical and electronic equipment manufacturing, brake systems, protective helmets, tail lens of motor cars, and computer programs. Please refer to Appendix 2 for title, NAICS code, keyword, and other details for the selected patents.

Discussion:

Statistical methods are dependent on the availability of data, such as inter-industry transactions table of an input-output table. However, qualitative methods, such as industry surveys and interviews can uncover hidden linkages, assets, and issues that are not so easily captured by the quantitative analysis. The research team conducted surveys of motorsports firms including racing teams, specialized garages and events insurance companies. The insights from surveys informed the motorsports cluster definition process.

The industries identified from the literature review, IMA and CONEXUS databases, input output analysis and patents were combined into one database of 172 6-digit NAICS codes. These industry sectors were further analyzed by **location quotient for 2010**, the employment concentration factor; **ratio of state average earnings to national average earnings**, the economic prosperity factor; and **percentage employment change from 2001 to 2010**, the employment growth factor. San Diego Association of Government's (SANDAG) cluster project recommends assessment of candidate industry sectors by using these economic variables. The location quotient is used to measure export potential of an industry sector and whether it can generate wealth by bringing outside dollars into the region. Ratio of earnings indicates remuneration potential of that industry sector and finally a positive employment change means that the industry sector is growing in the region. Any industry sector with either $LQ \geq 1$; or ratio of earnings ≥ 1 ; or positive employment growth was retained as candidate for the motorsports cluster definition. These candidate industry sectors were further assessed intuitively whether they belonged to motorsports or another type of cluster and those with stronger ties to other clusters were removed. For example, residential remodelers and commercial and institutional building construction sectors were removed despite IMA-CONXUES database and the IO analysis had identified those NAICS codes. Similarly, museums and health industry sectors were removed since they belonged to arts and tourism

and life sciences-related clusters respectively. Industry sectors that had lesser employment or did not meet any of the three criteria were also excluded. Regardless of 6-digit NAICS codes used in the definition, individual industries are broad groups by themselves. For example, NAICS 611310 or “colleges, universities and professional schools”, is a grouping of various educational institutions. This is retained in the definition because Indiana has various programs related to motorsports engineering and research. The number of faculty, scientists, engineers, staff, and students engaged in the motorsports programs can only be obtained through a detailed survey. The IO analysis as well as the IMA and CONEXUS databases identified linkages to NAICS 336412 or “aircraft engine and engine parts manufacturing”, which is an interesting insight. The detailed motorsports cluster definition for Indiana resulted in 120 industry sectors of 6-digit NAICS codes. Please refer to Appendices “4” for a complete listing of NAICS codes included in the detailed motorsports cluster definition and “5” for explanations and formulae of the three criteria.

References:

- 1) Connaughton, John E. et al. 2004. The Economic Impacts of the Motorsports Industry on the North Carolina Economy. Belk College of Business Administration. University of North Carolina Charlotte.
- 2) Connaughton, John E. and Ronald A. Madsen. 2006. The Economic Impacts and Occupational Analysis of the North Carolina Motorsports Industry for 2005. University of North Carolina Charlotte.
http://charlotteusa.com/images/uploads/CharlotteUSA_Motorsports_Report_2006.pdf
(accessed August 23, 2012).
- 3) Nolan, Christine , Sam M. Cordes, Brigitte Waldorf, Indraneel Kumar, Fred Byon, Joe Pearson et al. 2007. Unlocking Rural Competitiveness: The Role of Regional Clusters. Report submitted to the U.S. Economic Development Administration.
http://www.statsamerica.org/innovation/report_role_of_regional_clusters_2007.html
(accessed August 20, 2012).
- 4) Handbook of Input-Output Table Compilation and Analysis. 1999. Department of Economic and Social Affairs, United Nations, New York.
- 5) Kosheleva, Tatiana. 2005. Industry Clusters and Methods of their Identification: Application to the Gary-Chicago Region. Master of Community Planning Thesis, University of Cincinnati.

- 6) Klacik, Drew and Todd Cook. 2004. Motorsports Industry in the Indianapolis Region. Center for Urban Policy and the Environment, SPEA, IUPUI.
https://archives.iupui.edu/bitstream/handle/2450/563/102_Motorsports.pdf?sequence=1
(accessed August 23, 2012).
- 7) Mitchelson, Ronald L. and Derek Alderman. 2011. Mapping NASCAR Valley: Charlotte as Knowledge Community. *Southeastern Geographer* 50: 31-48.
- 8) Nolan, Christine E., Ed Morrison, Indraneel Kumar, Hamilton Galloway, and Sam Cordes. 2011. Linking Industry and Occupation Clusters in Regional Economic Development. *Economic Development Quarterly* 25: 26-35.
- 9) Nolan, Christine E. and Indraneel Kumar. 2006. GIS in Business and Industry Cluster Analysis: A Case Study of Indiana at the ESRI International User Conference August 7-11, in San Diego, CA, USA.
- 10) Understanding Cluster Analysis, San Diego Association of Governments,
http://www.sandag.org/rta/transfer/cluster_analysis.pdf.
- 11) William Schaffer. 1999. Regional Impact Models. In *The Web Book of Regional Science* (www.rrl.wvu.edu/web_book), ed., Scott Loveridge. Morgantown, WV: Regional Research Institute, West Virginia University.
- 12) Viljamaa, Kimmo. 2007. Technological and Cultural Challenges in Local Innovation Support Activities- Emerging Knowledge Interactions in Charlotte's Motor Sport Cluster. *European Planning Studies* 15: 1215-1232.

Appendix 1: IMA & CONEXUS Database Construction

The data for MVP database were obtained from Indiana Motorsports Association and CONEXUS Indiana Automotive Industry Database (2011). These databases have a list of businesses involved in motorsports or automotive industries. Databases included information about business location, contact information and other pertinent information. Also databases have description of business' activity area. The following steps were taken to construct a database for further Input-Output, GIS mapping and spatial analysis:

1. Two databases were merged into a single list that had 2,695 records.
2. In the next step NAICS codes were assigned to each business on the basis of description in the database. If description was vague or insufficient, business description was looked up in MANTA or D&B databases (available on-line at www.manta.com and www.dandb.com respectively). Each business was assigned a six-digit NAICS 2007 industry code. Some of the business operations could only be defined through multiple NAICS six-digit codes as they had diverse activities. We found as many as seven different NAICS codes (six-digit) associated with businesses. . After assigning NAICS codes duplicate businesses (have the same name, location, and NAICS) were removed from the list. However, if the same business operated in different areas (e.g. auto repair and race team), then all unique records were retained in the combined database. Also 13 businesses' NAICS were undetermined due to no description of their activity or due to being unrelated to motorsport/automotive industry, and thus those were removed. Database without duplicates and unknown types has 2,351 records with 2,234 unique businesses.
3. Then data were transposed to a table where each record represented unique business and with unique NAICS code. Also 3, 4, and 5 digit NAICS codes were added to each record as well as NAICS codes' descriptions. This can facilitate querying and data retrieval by industry type as well as by hierarchy. Resulted table has 3015 unique records.
4. Next, data were prepared for geocoding in ArcGIS software where address should be separated into different fields in the table: street, city, state, and zip code. After geocoding each record with unique address was mapped as a point on the map with 160 locations mapped to zip code area centroid (that is no actual address was found for the business).

Appendix 2: Selected Patent Listing with Motorsports Keyword

Title	NAICS Code	NAICS Keyword	Note
Adjustable shock absorber	336399	All Other Motor Vehicle Parts Manufacturing	
Adjustable universal operating lever extension	336399	All Other Motor Vehicle Parts Manufacturing	
Anthropomorphic manikin head skull cap load measurement device	811198	All Other Automotive Repair and Maintenance	Automotive safety inspection services
Apparatus and process for a computer input device	334119	Other Computer Peripheral Equipment Manufacturing	Computer input/output equipment (except terminals) manufacturing
Apparatus for testing a moving vehicle	336322	Other Motor Vehicle Electrical and Electronic Equipment Manufacturing	
Apparatus for towing motorcycles	336399	All Other Motor Vehicle Parts Manufacturing	Towing bars and systems manufacturing
Assembly for a motorized vehicle	336111	Automobile Manufacturing	Automobiles assembling on chassis of own manufacture
Automotive wheel	336312	Gasoline Engine and Engine Parts Manufacturing	Internal combustion engines, automotive and truck gasoline, manufacturing
Buffering content on a handheld electronic device	334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	Airborne radio communications equipment manufacturing
Caster-camber plate assembly	332611	Spring (Heavy Gauge) Manufacturing	Automobile suspension springs, heavy gauge metal, manufacturing
Clamp for tubular member and the like	332996	Fabricated Pipe and Pipe Fitting Manufacturing	Couplings, pipe, made from purchased metal pipe
Competition involving slot less race track and remote controlled motorized vehicles	541511	Custom Computer Programming Services	Applications software programming services, custom computer
Composite data cartridge drive belt	336312	Gasoline Engine and Engine Parts Manufacturing	Internal combustion engines, automotive and truck gasoline, manufacturing
Cover for vehicle seat handle	336360	Motor Vehicle Seating and Interior Trim Manufacturing	Automobile seat covers manufacturing
Decorative replica motorsports helmet	339113	Surgical Appliance and Supplies Manufacturing	Helmets (except athletic), safety (e.g., motorized vehicle crash helmets, space helmets), manufacturing

Title	NAICS Code	NAICS Keyword	Note
Deep insertion vented earpiece system	339113	Surgical Appliance and Supplies Manufacturing	Nose and ear plugs manufacturing
Digital camera and time lag setting method	334119	Other Computer Peripheral Equipment Manufacturing	Digital cameras manufacturing
Distributor cap adaptor for after-market distributors	336312	Gasoline Engine and Engine Parts Manufacturing	Internal combustion engines, automotive and truck gasoline, manufacturing
Distributor rotor	336312	Gasoline Engine and Engine Parts Manufacturing	Internal combustion engines, automotive and truck gasoline, manufacturing
Electroplating method	332813	Electroplating, Plating, Polishing, Anodizing, and Coloring	
Exhaust header system	336312	Gasoline Engine and Engine Parts Manufacturing	Internal combustion engines, automotive and truck gasoline, manufacturing
Exhaust muffler for an internal combustion engine	336312	Gasoline Engine and Engine Parts Manufacturing	Internal combustion engines, automotive and truck gasoline, manufacturing
Extensible cargo rack for vehicle bed	336212	Truck Trailer Manufacturing	Demountable cargo containers manufacturing
Fluidic stabilizer with remote control	336312	Gasoline Engine and Engine Parts Manufacturing	Internal combustion engines, automotive and truck gasoline, manufacturing
Folding toy hauler tent trailer	336214	Travel Trailer and Camper Manufacturing	Tent trailers (hard top and soft top) manufacturing
Fold-over thermal laminate for footwear	316219	Other Footwear Manufacturing	
Front face of vehicle wheel	336399	All Other Motor Vehicle Parts Manufacturing	Rims, automotive, truck, and bus wheel, manufacturing
Garment with display feature	315292	Fur and Leather Apparel Manufacturing	Garments, leather or sheep-lined (except apparel contractors), manufacturing
Gas-fuel nozzle	336312	Gasoline Engine and Engine Parts Manufacturing	Fuel injection systems and parts, automotive and truck gasoline engine, manufacturing
Helmet with improved shield mount and precision shield control	339113	Surgical Appliance and Supplies Manufacturing	Helmets (except athletic), safety (e.g., motorized vehicle crash helmets, space helmets), manufacturing

Title	NAICS Code	NAICS Keyword	Note
Hill hold method and system	336340	Motor Vehicle Brake System Manufacturing	Air brake systems and parts, automotive, truck, and bus, manufacturing
Hybrid motorsport garment	315299	All Other Cut and Sew Apparel Manufacturing	
Inferring hierarchical descriptions of a set of documents	518210	Data Processing, Hosting, and Related Services	Automated data processing services
Integrated buckle strap receiver for footwear	316219	Other Footwear Manufacturing	Footwear, athletic (except rubber or plastics soled with fabric upper), manufacturing
Interior shield on the lid of the trunk of a vehicle to prevent the lid of the trunk from being damaged by the contents contained beneath the lid	333319	Other Commercial and Service Industry Machinery Manufacturing	Frame and body alignment equipment, motor vehicle, manufacturing
Location-aware distributed sporting events	334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	Video camera (except household-type, television broadcast) manufacturing
Low-profile intake manifold	336312	Gasoline Engine and Engine Parts Manufacturing	Internal combustion engines, automotive and truck gasoline, manufacturing
Lug mount	336399	All Other Motor Vehicle Parts Manufacturing	Rims, automotive, truck, and bus wheel, manufacturing
Manifold alternator generator	336312	Gasoline Engine and Engine Parts Manufacturing	Internal combustion engines, automotive and truck gasoline, manufacturing
Manual fuel valve	336312	Gasoline Engine and Engine Parts Manufacturing	Fuel injection systems and parts, automotive and truck gasoline engine, manufacturing
Memorial container	339995	Burial Casket Manufacturing	Burial caskets and cases manufacturing
Method and apparatus for testing a moving vehicle	334290	Other Communications Equipment Manufacturing	Remote control units (e.g., garage door, television) manufacturing
Method and system for valuing advertising content	541511	Custom Computer Programming Services	Applications software programming services, custom computer
Method for distributing sports entertainment	334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	Video camera (except household-type, television broadcast) manufacturing
Method for making a safety seat having a molded shell and a safety restraint system integral thereto	336360	Motor Vehicle Seating and Interior Trim Manufacturing	Automobile seat covers manufacturing

Title	NAICS Code	NAICS Keyword	Note
Method of communicating data from virtual setting into real-time devices	517210	Wireless Telecommunications Carriers (except Satellite)	Wireless data communication carriers, except satellite
Method of distributing sports entertainment	334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	Video camera (except household-type, television broadcast) manufacturing
Method to efficiently process and present possible arrangements of a set of contiguous peer-to-peer links	518210	Data Processing, Hosting, and Related Services	Automated data processing services
Method, system and apparatus to facilitate conditional purchase orders with bounce back functionality	541511	Custom Computer Programming Services	Applications software programming services, custom computer
Method, system, and device for optimizing a vehicle's suspension	332611	Spring (Heavy Gauge) Manufacturing	Automobile suspension springs, heavy gauge metal, manufacturing
Methods and apparatus for controlling hazardous and/or flammable materials	325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	Fire extinguisher chemical preparations manufacturing
Methods and apparatus for developing a vehicle suspension	332611	Spring (Heavy Gauge) Manufacturing; Automobile suspension springs, heavy gauge metal, manufacturing	
Molded gasket for footwear	316219	Other Footwear Manufacturing	Footwear, athletic (except rubber or plastics soled with fabric upper), manufacturing
Molded safety seat	336360	Motor Vehicle Seating and Interior Trim Manufacturing	Automobile seat covers manufacturing
Motorcycle frame	336991	Motorcycle, Bicycle, and Parts Manufacturing	Motorcycles and parts manufacturing
Motorcycle swingarm	336991	Motorcycle, Bicycle, and Parts Manufacturing	Motorcycles and parts manufacturing
Motorcycle wind and rain deflector	336991	Motorcycle, Bicycle, and Parts Manufacturing	Motorcycles and parts manufacturing
Multimedia racing experience system	334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	Airborne radio communications equipment manufacturing
National remote controlled stock car racing association	334290	Other Communications Equipment Manufacturing	Remote control units (e.g., garage door, television) manufacturing
Novelty head covering	339113	Surgical Appliance and Supplies Manufacturing	Helmets (except athletic), safety (e.g., motorized vehicle crash helmets, space helmets), manufacturing

Title	NAICS Code	NAICS Keyword	Note
Oligomeric silicon coating compositions, articles coated therewith and method for forming coating composition and coated articles based thereon	325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	Inhibitors (e.g., corrosion, oxidation, polymerization) manufacturing
Portable tire bead breaker	333220	Plastics and Rubber Industry Machinery Manufacturing	Tire making machinery manufacturing
Process for repairing body parts on vehicles or the like	336370	Motor Vehicle Metal Stamping	
Protective collar	339113	Surgical Appliance and Supplies Manufacturing	Helmets (except athletic), safety (e.g., motorized vehicle crash helmets, space helmets), manufacturing
Protective film systems and kits for vehicular windows and window assemblies and methods using the same	811122	Automotive Glass Replacement Shops	Window tinting, automotive
Protective head guard	339113	Surgical Appliance and Supplies Manufacturing	Helmets (except athletic), safety (e.g., motorized vehicle crash helmets, space helmets), manufacturing
Protective helmet	339113	Surgical Appliance and Supplies Manufacturing	Helmets (except athletic), safety (e.g., motorized vehicle crash helmets, space helmets), manufacturing
Racetrack bridge	711212	Racetracks	Automobile racetracks
Removable tailgate extender net	336214	Travel Trailer and Camper Manufacturing	Automobile transporter trailers, single car, manufacturing
RFID enabled tire control system and method	326212	Tire retreading	
Rocker-arm having perpendicular geometry at valve mid-lift	336312	Gasoline Engine and Engine Parts Manufacturing	
Selectively positionable gearshift and method	336350	Motor Vehicle Transmission and Power Train Parts Manufacturing	Gears (e.g., crown, pinion, spider), automotive, truck, and bus, manufacturing
Shock absorber	336330	Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	
Smart padding system utilizing an energy absorbent medium and articles made therefrom			
Snowmobile slide	336999	All Other Transportation Equipment Manufacturing	Snowmobiles and parts manufacturing

Title	NAICS Code	NAICS Keyword	Note
Spanner tool	333513	Machine Tool (Metal Forming Types) Manufacturing	Machine tools, metal forming, manufacturing
Sparkplug boot and wire protector and assembly	336322	Other Motor Vehicle Electrical and Electronic Equipment Manufacturing	Spark plugs for internal combustion engines manufacturing
Sports safety helmet	339113	Surgical Appliance and Supplies Manufacturing	Helmets (except athletic), safety (e.g., motorized vehicle crash helmets, space helmets), manufacturing
Spray bar pair assembly	336312	Gasoline Engine and Engine Parts Manufacturing	Internal combustion engines, automotive and truck gasoline, manufacturing
Steering damper	332322	Sheet Metal Work Manufacturing	Dampers, sheet metal (except stampings), manufacturing
Supercharging assembly for an internal combustion engine of a motor vehicle	336312	Gasoline Engine and Engine Parts Manufacturing	Internal combustion engines, automotive and truck gasoline, manufacturing
System and method for automated proposal evaluation	541512	Computer systems	
System and method for presenting content on a wireless mobile computing device using a buffer	334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	Airborne radio communications equipment manufacturing
System and method for providing a display utilizing a fast photon indicator	334290	Other Communications Equipment Manufacturing	Alarm system central monitoring equipment manufacturing
System and method of synthesizing carbon nanotubes	327999	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing	
System and methods for enhancing the experience of spectators attending a live sporting event, with contextual information distribution capability	334419	Other Electronic Component Manufacturing	LCD (liquid crystal display) unit screens manufacturing
System and methods for enhancing the experience of spectators attending a live sporting event, with gaming capability	512110	Motion Picture and Video Production	Instructional video production
System, method, and apparatus for continuous synthesis of single-walled carbon nanotubes	325510	Paint and Coating Manufacturing	
Tail lens assembly	339115	Ophthalmic Goods Manufacturing	Lens grinding, ophthalmic (except in retail stores)
Taillight assembly	335110	Electric Lamp Bulb and Part Manufacturing	Automotive light bulbs manufacturing

Title	NAICS Code	NAICS Keyword	Note
Test system for dynamically analyzing a vehicle under simulated road conditions	541511	Custom Computer Programming Services	Applications software programming services, custom computer
T-handle hex wrench	332212	Hand and Edge Tool Manufacturing	Wrenches, hand tools, non-powered, manufacturing
Torque arm apparatus and suspension system	336350	Motor Vehicle Transmission and Power Train Parts Manufacturing	Axle bearings, automotive, truck, and bus, manufacturing
Track guide for mounting to a bed of a trailer	336399	All Other Motor Vehicle Parts Manufacturing	Hitches, trailer, automotive, truck, and bus, manufacturing
Trike body	336991	Motorcycle, Bicycle, and Parts Manufacturing	Bicycles and parts manufacturing
Tubed lamination heat transfer articles and method of manufacture	333415	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing	Evaporative condensers (i.e., heat transfer equipment) manufacturing
Turbocharger for high performance internal combustion engines	336312	Gasoline Engine and Engine Parts Manufacturing	Assembly line rebuilding of automotive and truck gasoline engines
Upper body protector	339920	Sporting and Athletic Goods Manufacturing	Protectors, sports (e.g., baseball, basketball, hockey), manufacturing
Valve lifter	336311	Carburetor, Piston, Piston Ring, and Valve Manufacturing	Engine intake and exhaust valves manufacturing
Ventilated safety helmet with progressively crushable liner	339113	Surgical Appliance and Supplies Manufacturing	Helmets (except athletic), safety (e.g., motorized vehicle crash helmets, space helmets), manufacturing
Vertically stowable modular multi-purpose trailer	336214	Automobile transporter trailers, single car, manufacturing	
Water feature device	713940	Fitness and Recreational Sports Centers	Wave pools
Wheel	336399	All Other Transportation Equipment Manufacturing	Rims, automotive, truck, and bus wheel, manufacturing
Wheel chock	336999	All Other Transportation Equipment Manufacturing	

Appendix 3: Detailed Definition of Motorsports Cluster

NAICS-2 digit	NAICS-3 digit	NAICS-6 digit	Definitions	Source	Other References
23	237	237310	Highway, Street, and Bridge Construction		IO
		315299	All Other Cut and Sew Apparel Manufacturing	IMA-CONEXUS database	Motorsports-related patents
31	316	316219	Other Footwear Manufacturing		Motorsports-related patents
32	323	323110	Commercial Lithographic Printing	IMA-CONEXUS database	IO
		323113	Commercial Screen Printing	IMA-CONEXUS database	
	324	324191	Petroleum Lubricating Oil and Grease Manufacturing	IMA-CONEXUS database	
		325510	Paint and Coating Manufacturing		IO, Motorsports-related patents
		325520	Adhesive Manufacturing	IMA-CONEXUS database	
		325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	IMA-CONEXUS database	IO, Motorsports-related patents
		326199	All Other Plastics Product Manufacturing	IMA-CONEXUS database	IO
	326	326211	Tire Manufacturing (except Retreading)	IMA-CONEXUS database	IO
		326220	Rubber and Plastics Hoses and Belting Manufacturing	IMA-CONEXUS database	
	327	327215	Glass Product Manufacturing Made of Purchased Glass	IMA-CONEXUS database	IO
		327993	Mineral Wool Manufacturing	IMA-CONEXUS database	
		331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding	IMA-CONEXUS database	
		331521	Aluminum Die-Casting Foundries	IMA-CONEXUS database	IO

NAICS-2 digit	NAICS-3 digit	NAICS-6 digit	Definitions	Source	Other References
		331524	Aluminum Foundries (except Die-Casting)	IMA-CONEXUS database	IO
33	332	332116	Metal Stamping	IMA-CONEXUS database	IO
		332212	Hand and Edge Tool Manufacturing	IMA-CONEXUS database	Motorsports-related Patents
		332312	Fabricated Structural Metal Manufacturing	IMA-CONEXUS database	IO
		332313	Plate Work Manufacturing	IMA-CONEXUS database	IO
		332322	Sheet Metal Work Manufacturing	IMA-CONEXUS database	IO, Motorsports-related Patents
		332611	Spring (Heavy Gauge) Manufacturing	IMA-CONEXUS database	Motorsports-related Patents
		332710	Machine Shops	IMA-CONEXUS database	IO
		332812	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	IMA-CONEXUS database	IO
		332813	Electroplating, Plating, Polishing, Anodizing, and Coloring	IMA-CONEXUS database	Motorsports-related Patents
		332912	Fluid Power Valve and Hose Fitting Manufacturing	IMA-CONEXUS database	
		332919	Other Metal Valve and Pipe Fitting Manufacturing	IMA-CONEXUS database	
		332996	Fabricated Pipe and Pipe Fitting Manufacturing	IMA-CONEXUS database	Motorsports-related Patents
		333298	All Other Industrial Machinery Manufacturing	IMA-CONEXUS database	
		333511	Industrial Mold Manufacturing	IMA-CONEXUS database	
		333515	Cutting Tool and Machine Tool Accessory Manufacturing	IMA-CONEXUS database	
		333611	Turbine and Turbine Generator Set Units	IMA-CONEXUS database	

NAICS-2 digit	NAICS-3 digit	NAICS-6 digit	Definitions	Source	Other References
			Manufacturing		
		333612	Speed Changer, Industrial High- Speed Drive, and Gear Manufacturing	IMA-CONEXUS database	IO
		333613	Mechanical Power Transmission Equipment Manufacturing	IMA-CONEXUS database	
		333618	Other Engine Equipment Manufacturing	IMA-CONEXUS database	IO
		333911	Pump and Pumping Equipment Manufacturing	IMA-CONEXUS database	
		333995	Fluid Power Cylinder and Actuator Manufacturing	IMA-CONEXUS database	
		333999	All Other Miscellaneous General Purpose Machinery Manufacturing	IMA-CONEXUS database	IO
		334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	IMA-CONEXUS database	IO
		334290	Other Communications Equipment Manufacturing		Motorsports-related Patents
		334310	Audio and Video Equipment Manufacturing	IMA-CONEXUS database	
		334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	IMA-CONEXUS database	
		334519	Other Measuring and Controlling Device Manufacturing	IMA-CONEXUS database	
	335	335110	Electric Lamp Bulb		Motorsports-related Patents

NAICS-2 digit	NAICS-3 digit	NAICS-6 digit	Definitions	Source	Other References
			and Part Manufacturing		
		335312	Motor and Generator Manufacturing	IMA-CONEXUS database	IO
		335911	Storage Battery Manufacturing	IMA-CONEXUS database	
	336	336111	Automobile Manufacturing	IMA-CONEXUS database	IO, Motorsports-related Patents
		336112	Light Truck and Utility Vehicle Manufacturing	IMA-CONEXUS database	IO
		336120	Heavy Duty Truck Manufacturing	IMA-CONEXUS database	IO
		336211	Motor Vehicle Body Manufacturing	IMA-CONEXUS database	IO
		336212	Truck Trailer Manufacturing	IMA-CONEXUS database	IO, Motorsports-related Patents
		336213	Motor Home Manufacturing	IMA-CONEXUS database	IO
		336214	Travel Trailer and Camper Manufacturing	IMA-CONEXUS database	IO, Motorsports-related Patents
		336311	Carburetor, Piston, Piston Ring, and Valve Manufacturing	IMA-CONEXUS database	IO, Motorsports-related Patents
		336312	Gasoline Engine and Engine Parts Manufacturing	IMA-CONEXUS database	IO, Motorsports-related Patents
		336321	Vehicular Lighting Equipment Manufacturing	IMA-CONEXUS database	IO
		336322	Other Motor Vehicle Electrical and Electronic Equipment Manufacturing	IMA-CONEXUS database	IO, Motorsports-related Patents
		336330	Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	IMA-CONEXUS database	IO, Motorsports-related Patents
		336340	Motor Vehicle Brake System Manufacturing	IMA-CONEXUS database	IO, Motorsports-related Patents
		336350	Motor Vehicle Transmission and	IMA-CONEXUS database	IO, Motorsports-related Patents

NAICS-2 digit	NAICS-3 digit	NAICS-6 digit	Definitions	Source	Other References
			Power Train Parts Manufacturing		
		336360	Motor Vehicle Seating and Interior Trim Manufacturing	IMA-CONEXUS database	IO, Motorsports-related Patents
		336370	Motor Vehicle Metal Stamping	IMA-CONEXUS database	IO, Motorsports-related Patents
		336391	Motor Vehicle Air-Conditioning Manufacturing	IMA-CONEXUS database	IO
		336399	All Other Motor Vehicle Parts Manufacturing	IMA-CONEXUS database	IO, Motorsports-related Patents
		336412	Aircraft Engine and Engine Parts Manufacturing	IMA-CONEXUS database	IO
		336612	Boat Building	IMA-CONEXUS database	
		336991	Motorcycle, Bicycle, and Parts Manufacturing	IMA-CONEXUS database	Motorsports-related Patents
		336992	Military Armored Vehicle, Tank, and Tank Component Manufacturing	IMA-CONEXUS database	
		336999	All Other Transportation Equipment Manufacturing	IMA-CONEXUS database	Motorsports-related Patents
		339112	Surgical and Medical Instrument Manufacturing	IMA-CONEXUS database	IO
		339113	Surgical Appliance and Supplies Manufacturing	IMA-CONEXUS database	IO, Motorsports-related Patents
		339115	Ophthalmic Goods Manufacturing		Motorsports-related Patents
		339991	Gasket, Packing, and Sealing Device Manufacturing	IMA-CONEXUS database	
42	423	423110	Automobile and Other Motor Vehicle Merchant Wholesalers	IMA-CONEXUS database	IO
		423120	Motor Vehicle Supplies and New Parts Merchant Wholesalers	IMA-CONEXUS database	IO
		423130	Tire and Tube	IMA-CONEXUS	

NAICS-2 digit	NAICS-3 digit	NAICS-6 digit	Definitions	Source	Other References
			Merchant Wholesalers	database	
		423510	Metal Service Centers and Other Metal Merchant Wholesalers	IMA-CONEXUS database	IO
		423830	Industrial Machinery and Equipment Merchant Wholesalers	IMA-CONEXUS database	IO
		423840	Industrial Supplies Merchant Wholesalers	IMA-CONEXUS database	IO
		424710	Petroleum Bulk Stations and Terminals	IMA-CONEXUS database	IO
		424720	Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and Terminals)	IMA-CONEXUS database	IO
44	441	441110	New Car Dealers	IMA-CONEXUS database	IO
		441120	Used Car Dealers	IMA-CONEXUS database	IO
		441221	Motorcycle, ATV, and Personal Watercraft Dealers	IMA-CONEXUS database	IO
		441229	All Other Motor Vehicle Dealers	IMA-CONEXUS database	IO
		441310	Automotive Parts and Accessories Stores	IMA-CONEXUS database	IO
		441320	Tire Dealers	IMA-CONEXUS database	IO
	447	447190	Other Gasoline Stations	IMA-CONEXUS database	IO
45	451	451110	Sporting Goods Stores	IMA-CONEXUS database	IO
	452	452990	All Other General Merchandise Stores	IMA-CONEXUS database	IO
		484121	General Freight Trucking, Long- Distance, Truckload	IMA-CONEXUS database	IO
52	524	524210	Insurance Agencies and Brokerages	IMA-CONEXUS database	
54	541	541110	Offices of Lawyers	IMA-CONEXUS	IO

NAICS-2 digit	NAICS-3 digit	NAICS-6 digit	Definitions	Source	Other References
				database	
		541330	Engineering Services	IMA-CONEXUS database	IO
		541380	Testing Laboratories	IMA-CONEXUS database	
		541420	Industrial Design Services	IMA-CONEXUS database	
		541511	Custom Computer Programming Services		Motorsports-related Patents
		541513	Computer Facilities Management Services	IMA-CONEXUS database	
		541613	Marketing Consulting Services	IMA-CONEXUS database	
		541614	Process, Physical Distribution, and Logistics Consulting Services	IMA-CONEXUS database	
		541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)		IO
		541910	Marketing Research and Public Opinion Polling	IMA-CONEXUS database	IO
		541922	Commercial Photography	IMA-CONEXUS database	
		541990	All Other Professional, Scientific, and Technical Services		IO
56	561	561920	Convention and Trade Show Organizers	IMA-CONEXUS database	
		561990	All Other Support Services	IMA-CONEXUS database	IO
	562	562910	Remediation Services	IMA-CONEXUS database	IO
61	611	611310	Colleges, Universities, and Professional Schools	IMA-CONEXUS database	IO
71	711	711212	Racetracks	IMA-CONEXUS database	IO, Motorsports-related Patent
		711219	Other Spectator Sports	IMA-CONEXUS database	IO

NAICS-2 digit	NAICS-3 digit	NAICS-6 digit	Definitions	Source	Other References
		711310	Promoters of Performing Arts, Sports, and Similar Events with Facilities	IMA-CONEXUS database	
		711410	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures		
81	811	811111	General Automotive Repair	IMA-CONEXUS database	IO
		811112	Automotive Exhaust System Repair	IMA-CONEXUS database	
		811113	Automotive Transmission Repair		IO
		811118	Other Automotive Mechanical and Electrical Repair and Maintenance	IMA-CONEXUS database	IO
		811121	Automotive Body, Paint, and Interior Repair and Maintenance	IMA-CONEXUS database	IO
		811198	All Other Automotive Repair and Maintenance	IMA-CONEXUS database	IO, Motorsports-related Patents
		811310	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	IMA-CONEXUS database	IO

Appendix 4: Explanation and Formulae of Variables

- Location quotient (LQ) – The formula for LQ is

$$LQ = \frac{\left(\frac{R1}{R2}\right)}{\left(\frac{N1}{N2}\right)}$$

Where: R1 = Regional Employment in Industry X

R2 = Total Regional Employment

N1 = National Employment in Industry X

N2 = Total National Employment

If $LQ < 1$, region is less specialized in industry X, and needs to import goods to satisfy the local demand; if

$LQ = 1$, region produces just enough in industry X to satisfy the local demand; and if $LQ > 1$, region is more specialized in industry X and exports the industry's output to other regions.

- Ratio of state average earnings to national average earnings (E_r)

$$E_r = \frac{Es}{En}$$

Where: Es is \$ average earnings at state level in industry X

En is \$ average earnings at the national level in industry X

If $E_r < 1$, the average earnings at the state level is less than the national level for industry X; if $E_r = 1$, the average earnings at the state and national levels are the same; if $E_r > 1$, the average earnings at the state level is greater than the national level for industry X. Earnings include wages, salaries and supplements.

- Percentage employment change from 2001 to 2010 (E_{ch})

$$E_{ch} = \left(\frac{Emp_{2010} - Emp_{2001}}{Emp_{2001}} \right) \times 100$$

Where: Emp2010 and Emp2001 are employment in years 2010 and 2001 respectively in the state for industry X. A positive rate for percentage employment change means employment in industry X has increased between 2001 and 2010 and vice versa.

Appendix 5 – Training Assets in Indiana with potential application for motorsports

Course offerings and industry certifications at Ivy Tech Community College

- Technical Skills
 - Manufacturing Skills Standards Council (MSSC)
 - Certified Production Technician
 - Certified Logistics Associate
 - Certified Logistics Technician
 - National Institute for Metalworking Skills (NIMS)
 - CNC Machine Operator
 - CNC Milling
 - Welding Fundamentals
 - Machining Fundamentals
 - Blueprint Reading
 - Quality Assurance
- Business Administration
 - Business Fundamentals
 - Business Marketing & Writing
 - Business Analysis, Introduction
 - Business Law for the Small Business Owner
- Management & Supervisory Skills (based on our Management & Supervisory Institute curriculum)
 - Tools of Management
 - Results Oriented Communication
 - Conflict Resolution
 - Employee Development
 - Presentation Skills
- Professional Development
 - Team Building
 - Problem Solving
 - Excellence in Customer Service
 - Time Management
 - Writing for Effective Communication

- Computer Skills
 - Microsoft Office Suite (Excel, Word, Outlook, Power Point)
 - QuickBooks
 - Web Design (Ivy Tech Certificate Program)
 - Adobe Dreamweaver I & II
 - Introduction to Design
 - Flash Design
 - Graphic Design (Ivy Tech Certificate Program)
 - Adobe Photoshop I & II
 - Adobe Illustrator
 - Basic Graphic Design

Indiana Center for Applied Technology (ICAT) at Vincennes University

ABB Robotics Lab at Vincennes University:

- IRB 140 w/IRC5 w/External Axis Capability and Motor Package 10
- IRB 4600 w/IRC5 Controller 2
- IRB 260 w/IRC5 w/PickMaster 5 Prepared 4
- FlexArc 250R Welding Cell 2
- FlexArc M1 Welding Cell 4

A few of the classes that are offered at the ABB Robotics Lab located at Vincennes University are:

- IRC 5 Robot Basic Programming: This course is intended for personnel responsible for starting and operating the robot creating and editing programs.
- IRC5 Advanced Programming: The goal of this course is to provide instruction in high level programming features and techniques. Designed for students who have successfully completed the IRC5 Robot Basic Programming class and who need a greater depth of knowledge. It does not provide a review of basic programming.

- **IRC5 Electrical Service:** The course is designed to teach students how to identify the electrical components, theory of operation, and introduce proper trouble shooting procedures on the ICR5 controller. Approximately 50% of the course is hands-on troubleshooting of actual robot system and controller.

- **IRC5 Basic Robot Welding:** The goal of this course is to train the student to safely use the teach pendant to create weld programs, set and change weld data, and edit existing programs.

Advanced CNC Manufacturing

Advanced CNC Manufacturing at Vincennes University is an accelerated 14 week summer course of study that provides students with nearly 600 additional contact hours of advanced CAD/CAM programming and CNC machining.

Instruction is provided in Vincennes University's state-of-the-art Technology Center located on the VU main campus. This facility houses the Haas Technical Education Center (HTEC), made possible through the Lilly Tech Works Partnership Fund, which includes 15 Haas machining and turning centers as well as a wire EDM.

Students program and machine complex 2, 3, 4, and 5-axis parts using the latest version of Mastercam X and the Haas CNC machine tools. Projects are designed to make use of the latest in high speed machining in collaboration with companies specializing in die making, mold making, aerospace, medical, and the motorsports industry.

Computer Integrated Manufacturing & Robotics

Graduates of the Computer Integrated Manufacturing Program or the Industrial Maintenance Program can find employment opportunities with companies that manufacture or use green energy systems. Examples are manufacturers of wind mill systems, companies that install and maintain wind mills,

companies that produce alternative fuels, and companies that generate energy from alternative methods.

Precision Manufacturing

Precision Manufacturing is a highly skilled occupation in which raw material is machined and transformed into a specialized piece of industrial tooling.

Vincennes University offers the most comprehensive Precision Manufacturing Technology program in Indiana, and it is one of the very few in the United States to offer specialized training in building metal stamping dies and plastic injection molds.

Students have the opportunity to develop a solid background in machine shop practices, and to learn set-up and operations for all basic types of manual and CNC machine tools. Classroom discussions focus on theory, terminology, and calculations.

The type and quality of equipment used in our labs include traditional machine tools as well as the latest in computer machining equipment— identical to that found in industry. In addition, our faculty has extensive background in education, teaching, and industry, to ensure that you receive instruction in both theory and practical applications.

Precision Manufacturing graduates have the option of applying for acceptance into our 14 week summer Advanced CNC Manufacturing program, providing them with an additional 600 hours of hands on CNC training, as well as a second Associates degree.

Product Design and Production Processes

Drafters design products or special tooling required to manufacture a new product. These designs, usually based on specifications and rough sketches prepared by engineers, are the blueprints for

manufacturing. It's a career that can be challenging and rewarding since you are involved in the creating and development of new ideas.

Welding Technology

The Welding Technology boasts of new welding stations with new Lincoln Electric multi-process welding equipment. Vincennes University and Lincoln Electric have created an exciting new partnership to ensure the welding program maintains the latest in state of the art welding equipment used in industry today.

Welding Technology is a comprehensive two-year A.S. or A.A.S program designed to prepare the student for gainful employment in the welding field. Emphasis is placed on preparation for the A.W.S. (American Welding Society) Certifications. Graduates also have the opportunity for transfer to a baccalaureate degree program.

Students are trained in OAW (Oxy Acetylene Welding), SMAW (Shielded Metal Arc Welding), Gas Metal Arc Welding), and GTAW (Gas Tungsten Arc Welding). Plasma arc cutting, air carbon arc cutting, and print reading are covered. Advanced inspection and fabrication methods, along with automation are covered to achieve the extensive discipline demanded within the welding profession. A major portion of the lab time is devoted to developing skills in all structural and pipe welding positions.

The one-year certificate program provides nine months of concentrated training with approximately 20 hours per week in welding lab, the majority of which will be devoted to hands-on training. The student's skills needed to perform welds that comply with A.W.S. standards will also be developed.

Motorsports Engineering Degree at IUPUI

This 4-year Bachelor of Science of Degree in Motorsports Engineering degree program was just approved in May, 2008. This program, which aims to prepare graduates for careers in the motorsports industry, as well as automotive-related companies, will focus on teaching fundamentals of engineering and will include hands-on projects that involve designing, analyzing, and building of actual systems.

The Motorsports Engineering program is 127 credit hours including a foundation of 70 semester hours in engineering and engineering course work. Motorsports specific classes include:

- Introduction to Motorsports
- Business of Motorsports I & II
- Motorsports Design
- Data Acquisition in Motorsports I & II
- Dynamic Systems and Signals
- Computer Aided Engineering
- Control Systems Analysis and Design
- Automotive Control
- Vehicle dynamics
- IC Engines
- Capstone Design Project
- Internship

INDIANA MOTORSPORTS TIMELINE

1909: The founders, Carl G. Fisher, James A. Allison, Arthur C. Newby and Frank H. Wheeler, pooled their ideas and resources to build the Indianapolis Motor Speedway, which would become the world's greatest racecourse. Fisher's vision was to build an automobile testing ground to support Indiana's growing automotive industry.

June 5, 1909: The first competitive event to take place at the Indianapolis Motor Speedway was actually a gas-filled balloon race. In the handicap division, Dr. Goethe Link and Russ Irvin's "Indianapolis" won. John Berry and Paul McCullough won the National Championship race with the "University City."

Aug. 14, 1909: The first motorized races - using motorcycles - took place on the recently completed IMS oval, which had a racing surface composed of crushed stone sprayed with tar. A.G. Chapple won the first race, a five-mile handicapped race with seven competitors, on an Indian motorcycle. The two-day event was originally scheduled to begin on Friday, Aug. 13 but was rained out. Because competitors would not compete on Sundays in that era, the final day of competition was rescheduled for Monday the 16th, but the day's activities were canceled due to track surface conditions.

Aug. 19, 1909: The Speedway opened for three days of auto racing, the first automobile races in track history. The first auto race was a two-lap, 5-mile standing start "dash" won by Louis Schwitzer. Accidents in the initial events, however, convinced the management that a paved surface was necessary for the safety of drivers.

Late 1909: In a span of 63 days, 3.2 million paving bricks, each weighing 9.5 pounds, were laid on top of the crushed rock and tar surface to upgrade the Speedway. The job was completed in time for another series of races scheduled for Dec. 18, but sub-freezing weather forced cancellation of the event.

May 30, 1911: The first Indianapolis 500-Mile Race, initially named the "International Sweepstakes," was won by Ray Harroun at an average speed of 74.602 mph. Except during America's involvement in World Wars I and II, the Indianapolis 500 has been an annual event ever since. Many historians believe that this race marked the first use of a pace car to start a race. It is also believed that Harroun's Marmon "Wasp" was the first automobile to use a rearview mirror.

1935: The Indianapolis Motor Speedway was the first track in the world to install safety-warning lights. Also in 1935, helmet use became mandatory at the Speedway, a first for motor racing worldwide.

Nov. 14, 1945: Tony Hulman of Terre Haute, Ind., obtained control of the Indianapolis Motor Speedway, purchasing it from Eddie Rickenbacker for \$750,000. Hulman would help elevate the Indianapolis 500 and the month of May to a new level. Wilbur Shaw was named president and general manager. Shaw would later popularize the tradition of announcing, "Gentlemen, Start Your Engines" in the early 1950s.

1960: Indianapolis Raceway Park, a multi-purpose racing facility is opened just eight miles west of the Indianapolis Motor Speedway in Clermont, Indiana. IRP was located on 267 acres of land and consists of

three race tracks: oval, drag strip and road course. The first event was held on the ¼ mile drag strip. The first oval race (on dirt) was held in 1961 and won by AJ Foyt.

1978: Robert and Joyce Newton raised the capital needed to build the world's first and only factory solely devoted to the production of racing tires and launched Hoosier Tire. Located in Plymouth, Indiana, just down the road from the corporate office in Lakeville, the factory began production in 1979.

1981: IRP hosts the first ever NASCAR event in Indianapolis when the Grand National Series comes to town.

1989: Gary Ornsby, Don Prudhomme and Larry Minor operate their NHRA teams out of shops in central Indiana. In 1999, Prudhomme built his race shop in Brownsburg and the following year Bill Simpson built the first of several race shops in Hendricks County. Since Prudhomme's move in 1999 several others have followed because of the central location, cost of doing business and talent pool available in Indiana. Those teams are: Kenny Bernstein Racing, John Force Racing, Don Schumacher Racing, Pedregon Racing, Vance & Hines and Bob Vandergrift Racing. These teams employ hundreds of Hoosiers and several suppliers have also followed their move to Indiana creating even more jobs.

March 11, 1994: Tony George, president of the Indianapolis Motor Speedway, announced plans for a new racing series, the Indy Racing League, to begin competition in 1996. The Indianapolis 500 is its cornerstone event.

Aug. 6, 1994: The inaugural NASCAR Brickyard 400 race was won by Jeff Gordon.

Sept. 24, 2000: Michael Schumacher won the inaugural United States Grand Prix Formula One race at Indianapolis before a sellout crowd estimated at 225,000. Schumacher's Ferrari teammate, Rubens Barrichello, finished second and Heinz-Harald Frentzen was third in the Jordan Grand Prix entry.

May 1, 2002: The Speedway announced that the groundbreaking SAFER (Steel And Foam Energy Reduction) Barrier was in place in all four of the Speedway oval's corners for the beginning of practice for the 86th Indianapolis 500. Under development by the Indy Racing League and the University of Nebraska-Lincoln's Midwest Roadside Safety Facility since 1998, the SAFER Barrier is designed for multiple impacts by Indy Racing League cars and stock cars during an event. NASCAR joined in the development of the project in September 2000. The barrier is also used during the Brickyard 400.

May 1, 2006: Leaders of the industry create the Indiana Motorsports Association, Inc. The IMA is a not for profit that will promote the motorsports industry throughout the state of Indiana.

Sept. 14, 2008: Six-time MotoGP World Champion Valentino Rossi won the inaugural Red Bull Indianapolis GP, which officials ended after 20 of the scheduled 28 laps due to high winds and heavy rain brought on by the remnants of Hurricane Ike. Rossi became the MotoGP/500cc rider with the most wins in history with his 69th victory in that class, surpassing fellow Italian legend Giacomo Agostini. 2006 MotoGP World Champion and Owensboro, KY native Nicky Hayden finished a season-best second, and Jorge Lorenzo was third.

STRATEGIC DOING

Strategic Doing is a process which enables civic leaders to form collaborations quickly, guide them toward measurable outcomes, and make adjustments along the way.

During a **Strategic Doing Workshop** participants are led through a structured set of conversations and guided by workshop exercises, which define 5 things:

- Opportunities
- At least one outcome with characteristics and metrics
- At least one initiative or project
- A complete action plan
- A plan to meet again

The process focuses on four key questions:

WHAT COULD WE DO TOGETHER?

- Look first at assets within the group at the table.
- Next look to see how combining the known assets might offer new opportunities.
- Evaluate who is not at the table but might have an interest or resources helpful to the solution.

WHAT SHOULD WE DO TOGETHER?

- Define an outcome with SMART goals and metrics.
- Evaluate the options for action and help the group narrow the scope of activity by suggesting the group focus on no more than three goals initially.
- Analyze the suggested activity to see if it is appropriate for the assembled group (e.g. – is some other entity already working on the project or is the proposed project something that needs higher authority approval).

WHAT WILL WE DO TOGETHER?

- Draft an activity/action plan including the first action step, the responsible entity and a “due date.”
- Make a public commitment to “do” the action step

WHAT’S OUR 30/30?

- Decide how the group will communicate (face-to-face, internet, email, weblogs, etc.).
- Set a date, in the next 30 days, for follow-up, reporting and adjustments.

Strategic Doing allows your community, organization or network to create an action plan, with measurable outcomes and accountability, in a 3-6 hour period.

Purdue Center for Regional Development

West Lafayette, Indiana ~ 877.882.7273

www.pcrd.purdue.edu

**ANNEX III
TO
EXHIBIT A (IMPROVEMENT PLAN)**

Identified Project 100 Improvements

	<u>Cost Estimate</u>
A. <u>Fan Experience:</u>	\$45,000,000
1. Concessions	
2. Georgetown Neighborhood	
3. Infield Neighborhood	
4. Restroom Renovations	
B. <u>Technology:</u>	\$17,000,000
1. Pylon Scoring Tower	
2. Video	
3. Wi-Fi	
C. <u>Track Improvements:</u>	\$11,000,000
1. Catch Fence Refurbishing	
2. Track Improvements	
D. <u>Seating Improvements:</u>	\$57,000,000
1. Elevator Towers (3)	
2. Paddock Grandstands Refurbishing	
3. Roof refurbishment; Column removal	
4. Seating	
5. Social Platforms	
6. Suite Renovations	
E. <u>Access, Traffic & Parking:</u>	\$8,000,000
1. Infield Parking	
2. North Tunnel	
3. Way Finding; Signage	
F. <u>Sponsor Activation:</u>	\$2,000,000
<u>Total Estimated Cost of Identified Improvements:</u>	<u>\$140,000,000</u>

Exhibit B

Geographic Area Constituting the Motorsports Investment District

The geographic area related to the Motor Speedway that has been determined by the Commission to be a "motorsports investment district" under the Act as attached as part of Annex I to the Improvement Plan contained in Exhibit A to this Resolution, which is further described as follows:

- The area and parcels as reflected on the *Quadrant Maps* that are bordered on their exterior boundary by reference to a dark blue line together with parcel numbered 90 paralleling and south of Crawfordsville Road and including any right of ways within such geographic area ("Quadrant Maps"), which are attached as part of Annex I to the Improvement Plan contained in Exhibit A to this Resolution.
- The area as reflected on the *Satellite Overlay* that is bordered on its exterior boundary by reference to a dark blue line together with red bordered area paralleling and south of Crawfordsville Road and including any right of ways within such geographic area ("Satellite Overlay"), which is attached as part of Annex I to the Improvement Plan contained in Exhibit A to this Resolution.
- Parcels numbered one (1) through one hundred three (103) as indexed on the Directory of Parcels ("Directory of Parcels"), which is attached as part of Annex I to the Improvement Plan contained in Exhibit A to this Resolution.
- Any conflict among the foregoing sources of information shall be resolved by reference to the Directory of Parcels and Quadrant Maps in lieu of the Satellite Overlay.